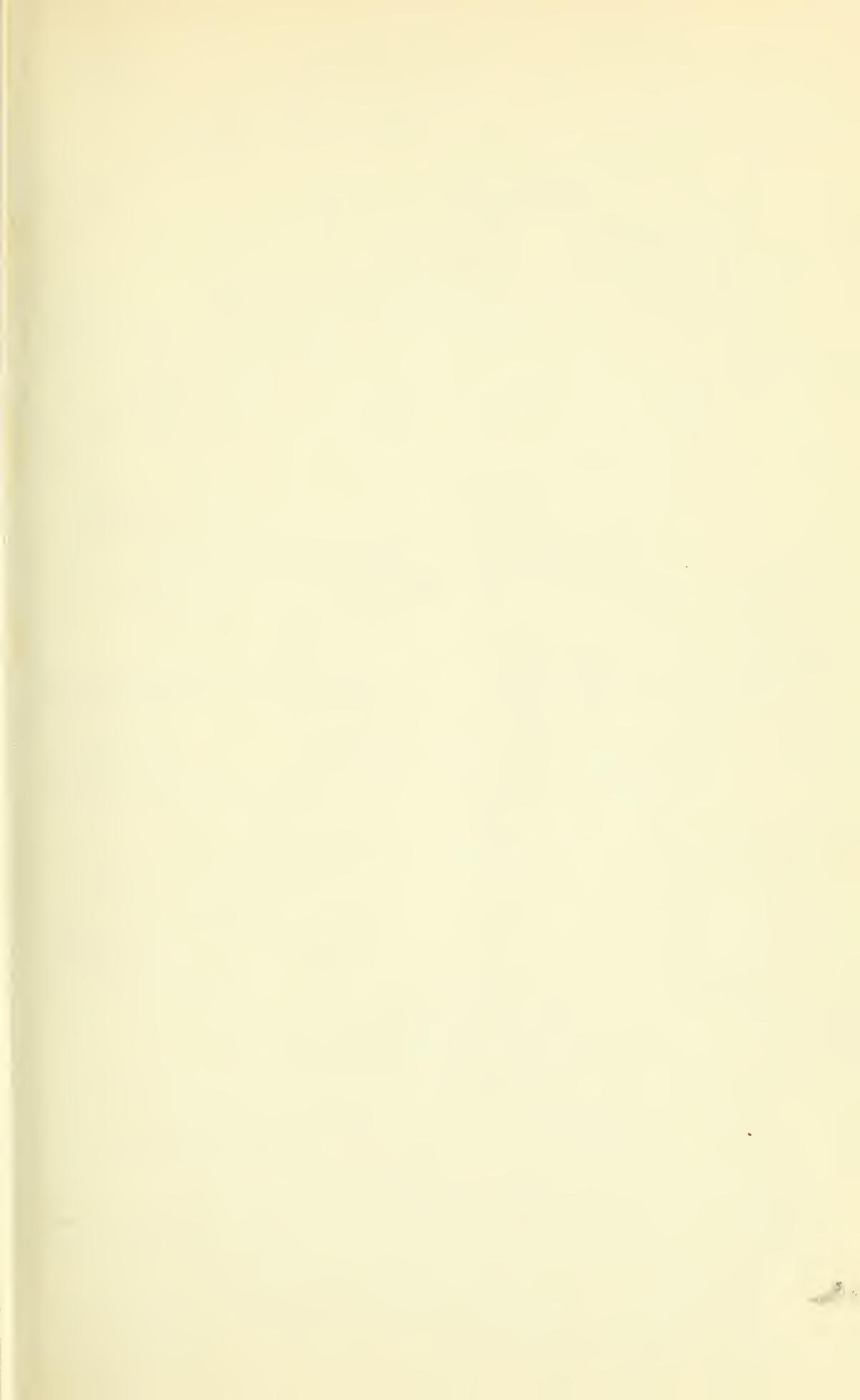


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THE DENTAL HEADLIGHT.

A Quarterly Record of Dental Science Devoted
to the Interest of the Profession.

EDITED BY

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PUBLISHED BY —————

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T·H·E

DENTAL HEADLIGHT.

VOL. 17.

NASHVILLE, TENN., JANUARY, 1896.

No. 1.

Original Communications. . . .

DENTAL EXAMINING BOARDS IN THE UNITED STATES AND PRELIMINARY EDUCATION.*

BY G. CARLETON BROWN, D.D.S., ELIZABETH, N. J.

Mr. President and Members of the Central Dental Association: At the request of your Executive Committee, I, in a moment of weakness, agreed to read a paper to this society on "Examining Boards," "Dental Education," or something of that kind. I had no sooner made this fatal error than our ubiquitous Chairman of the Dinner Committee, and general Poo Bah, Dr. Meeker, appeared upon the scene and demanded the title of the paper; as I had not the slightest idea what I was going to say, I could not think of a title, so I told him to call it anything he pleased; then I had to wait until the programme appeared to find out what I was to write about; when I did find out, it struck me that the title gave me license to talk about most anything, so that a general potpourri on dental education is the result. I trust that you will excuse the crude form in which it is served.

A résumé of the question in regard to the influence of examining boards on dental education would necessarily become a history of the advance of modern dentistry, and in saying this, and in claiming a large share of this advance for the examining boards, I do not mean to detract a particle from the great work that has been done by the colleges; to them, first and foremost, belongs the credit for the advanced standing of the profession of dentistry to-day. But I greatly doubt whether the colleges would have attained to their present standing, or have demanded the high standard now

* Read before the Central Dental Association of Northern New Jersey December 16, 1895.

required of graduates, if it had not been for the examining boards. There are several ways of looking at why and how this influence came into existence; but I think that the most rational is that the colleges are not working entirely from a philanthropic standpoint, while the examining boards are. The colleges are pecuniarily interested in their work, and are, of course, striving to make all the money they can, and in some cases more than they have any business to make. But, as Rudyard Kipling says, "that's another story;" while the members of the boards are sacrificing much time, and in nearly all cases are spending their own money to elevate the standard of their profession, and this without the slightest chance of any pecuniary benefit to themselves.

These facts being accepted, with the further statement that in spite of the antagonistic attitude assumed by some of the colleges toward the boards, the latter have none but the kindest feelings to the colleges, and when they make criticisms and suggest certain reforms it is not because they love the colleges less, but their profession more.

The elevating of the standard of dentistry, demanded by the profession, must be done, to a great extent, through the educational mediums, and as public institutions, they are certainly open to criticism if they fail to properly equip their graduates.

Any one who has been an unprejudiced observer of the changes in the teachings of the schools, and the character of the material turned out since the establishment of the State examinations, must admit that the boards have had an influence on the colleges, and in many instances have been the means of procuring for the student a higher and better education. This being the case, is it not the duty of the boards to continue the work of pointing out the defects which still exist, and of suggesting reforms?

The only question that now arises is: Should these discussions be confined to the national associations representing the colleges and the boards, or should the matter be openly and freely discussed by the profession at large? I consider the latter the proper course, hence this paper.

A few years ago it seemed the fashion for a man, when he thought he could not make a success of anything else, to either enter the ministry or take up dentistry as a profession; and if the latter were his choice, the mere fact that he had neither the preliminary education that would allow him to receive and assimilate the scientific and theoretical teachings of the profession did not

enter into the question any more than did that of whether he had the requisite amount of mechanical adaptability.

The colleges recognize this by theoretically requiring a preliminary education. I say theoretically, for what they actually require hardly deserves even that name.

In making these charges I do not say that some schools do not require a proper preliminary examination, but I do know that the examination, if it exists at all in certain schools, must be a perfect farce. In making this statement I know that I shall be borne out by members of any examining board who require a written examination. I will give you a few illustrations to demonstrate this point. The illustrations are taken from the papers of recent graduates, and are exactly as written, none being selected unless plainly written so that no mistake could be attributed to defective penmanship:

Question. What relation to dental caries do the microorganisms bear?

Answer. Dental caries is a destruction of the tooth substance which is hard and microorganisms is effect the soft parts of a body.

Q. What acid is produced by the microorganisms?

A. Toxic acid is produced by the microorganisms.

Q. How?

A. By the action of them upon the soft tissues, these be open.

Q. What is plethora?

A. Is a disease of the pleura.

Q. What is disease?

A. Is the disturbance of the equilibrium or perversion of circulation.

Q. What is fever?

A. The riseing of the temperture caused by too much blood in a part.

Q. What is shock?

A. Shock is the sudden checking of the nerves caused by accident.

Q. What is the difference between a narcotic and a hypnotic?

A. Narcotic acts on part the small intestines. Hypnotic acts on the whole large intestines.

Q. What are the stages of anaesthesia?

A. Drowsiness sleepy feelings long breathing Stifness of muscles and relaxation of the parts.

Q. What are the effects of inhaling nitrate of amyl?

A. It produces krowness.

Now as to a student's mechanical adaptability, granted a first-class education and the receptive qualities necessary for a good scientific education, of what avail is it "if he hasn't it in his fingers," as Dr. Eaton expressed it. He will never make a dentist, and of this fact the colleges have as yet taken no notice. They might, perhaps, refuse to graduate him at the end of his three year's course, even if he stands first in his class in theory; but would they do

this? And if they did, would it not be pretty hard on the student? But is it not worse to have an incompetent man turned loose on the public? And here is where the examining boards come in again, as our friend and fellow-hornet, Prof. Flag, says: "The board steps up and says 'Hold!' and the young man steps out into *innocuous desuetude*, with three of the best years of his life wasted."

This is certainly hard on all concerned, the board, the college, and the student. But, hard as it may be, the boards must do their duty as State officials and servants of the public. There is no question about its being hard on the student; the college from which he graduated should feel a twinge of remorse for having taken his money and time and failed to give him what he has paid for. They (the colleges) may have done all in their power; but if the student did not "have it in his fingers" to start with, all the colleges in the country could not have given it to him, their mission being only to develop. Where is the remedy? Many, I am sure, must have given the subject thought, but the first practicable suggestion that I have seen comes from Dr. Crouse, who says: "A young man may be bright, a good student, and well grounded in the classics; and yet an attempt to make a dentist of him would destroy his usefulness in life, make him a detriment to the community in which he practiced, and not a credit to the dental profession. Therefore the first six weeks of the college course should be spent in finding out who are properly qualified, by nature as well as by training, to be dentists; and those who are not fit should have their fees refunded, and should be persuaded to select a more suitable calling in life. In short, the 'plucking' should be done at the beginning of the college course rather than at the end." Here is something for the Faculties to think about, and by adopting some such system they will save the boards many unhappy moments.

And while they are occupied with this subject, it would be well to look more carefully after the training of the students in the practical departments. It is a noticeable fact that since the increase of the term of pupilage from two to three years, while the scientific and theoretical knowledge of the graduates has increased to a marked degree, the practical has not only failed to keep pace with it, but has actually decreased. Are we, as a profession, sacrificing the practical to the theoretical? Whoever is leading in this matter, the profession or the professors, damage is being done and a halt should be called.

According to the reports given by students the means and appa-

ratus in some of the colleges for pursuing the practical studies are absurdly inadequate, in some instances there being only one blow-pipe for the use of several hundred students, with in many cases no chance of obtaining instruction in its use even then; the demonstrator, so called, being engaged in the more important (?) work of looking after the business part of the insertion of articial dentures, for a consideration, said consideration, by the way, netting a good round profit to the college. In fact, the colleges seem to be giving instruction only in the direction in which there is a direct pecuniary benefit to themselves, instead of educating the student to a higher standard of general proficiency in mechanics.

I have had graduates tell me that the case they soldered before the examining board was the first piece of metal work they had ever done, and one man acknowledged that he had never had a blow-pipe in his hand before. The colleges may say that this evidence is not trustworthy, as it comes from men who, after having made a poor piece of work for us, are trying to throw the responsibility on the college. This might have more weight if it were not for the fact that the story comes from so many different graduates, and is so amply corroborated by the work they do at the examinations. If you will carefully examine the specimens which I herewith submit, I think that you will come to the conclusion that there are reforms needed in this direction. The accompanying specimens have been selected and mounted by Dr. Barlow (who has charge of the mechanical department of the New Jersey Board) from work done within the last year, as part of the practical examination required from each applicant.

Have the men who did this work received a proper education to enable them to practice dentistry?

I think this will prove to your satisfaction that in some cases the practical side is being sacrificed to the theoretical. That others have noticed the same thing is shown by the following extract from the report of the Committee of Practice of the New York State Society, read at Albany May 8, 1895: "Our institutions of learning should take heed that the manual skill of their graduates does not suffer on account of increased theoretical training."

The colleges may claim that every student has to submit a satisfactory piece of metal work as part of his examination and a prerequisite to graduation. True, but do they inquire carefully into the question of who made the piece? That, however, is part of the other story I am coming to later.

Leaving the mechanical department for the operative, we perhaps find an improvement. But does not the effort to swell the college treasury overbalance the educational features? Are not many teeth, that by proper treatment could be saved, sacrificed to make way for other work that would pay better, thus doing an injury to the patients and depriving the student of an important means of education? How many students, when they graduate, are really competent to contend with the complicated cases of pulpless or abscessed teeth?

If any of you will stop and think of the many difficulties you have had to contend with and master for yourselves since you commenced active practice, that could have been greatly simplified by proper instruction from a demonstrator during your collegiate course, you will better appreciate the point I am trying to emphasize.

Is it not just as important that there should be a competent corps of demonstrators as of lecturers? Now, as a rule, there is one head demonstrator, whose duty it is to apportion the patients and handle the gold and cash, these occupations leaving him little time to assist and advise the students in their work, these latter functions being left to undergraduates, who are appointed assistant demonstrators. If the colleges would provide a sufficient number of first-class demonstrators to be constantly on hand during clinic hours, in order to personally instruct students in the correct diagnosis and treatment of cases, the percentage of failures before the examining boards would be materially decreased. These remarks will apply equally well to either department of the practical education in our institutions.

While on the subject of college clinics I cannot resist again alluding to the matter of fees. The present system in many institutions of having fixed prices for operations places them about on a par with the so-called "associations" which have done so much to lower the standard of dentistry in the public mind. In both cases the bulk of the work is done by inexperienced and incompetent men: in the associations, because that kind of help comes cheap; and in the colleges because the workmen are students. These methods have taken away any right which the clinics might once have had to be called free.

One means of cementing the colleges and the profession more closely together would be for the former to return to the old method of simply charging for the material used, and making the clinic a dispensary in the true meaning of the word.

The method of procedure in the mechanical examination before the New Jersey Board is as follows: Every candidate is required to make a metal plate, band it, grind and back the teeth, and invest ready for soldering before the board. Sometime since, it became apparent that in a great many instances the character of the preparatory work and the final soldering differed so markedly that it was impossible that the same person should have done both. This led to an investigation, and it was found that there were persons who made a regular business of supplying students who were to appear before the board with plates ready for soldering. It was also found that these same persons were in the habit of making the graduating cases for students in the college, charging them different prices according to style and finish. The board met this difficulty by requiring each applicant to make an affidavit stating that he did all the work on his plate himself, without assistance from any one.

The fact that a student can buy a plate, present it, and have it accepted as his own work in college, certainly confirms my previous statement as to the lax way in which the clinics are conducted. A demonstrator in the mechanical department certainly should know whether a graduating piece was made in the college laboratory or not. But, worse even than this, comes the report that in some cases the demonstrators have themselves made these plates for the students, they, of course, having paid for the same.

Another reported condition of affairs in one of our colleges seems to me, if true, to deserve such unqualified disapproval from the profession that a continuance of such practice will henceforth be impossible. It is, in short, that a certain dental house holds such a large interest in one of our colleges that the students say that they dare not buy their instruments from other houses, because by so doing they will jeopardize their chances of graduating. If this report is true, taken in connection with the matters which I have laid before you, is it not time that the profession at large insisted on knowing more about the way in which our institutions are conducted, and where reforms are needed insist on their not only being introduced, but lived up to?

In conclusion, I wish to state that no charge in this paper has been aimed at any particular college, the defects mentioned being distributed among the different institutions. There are some, however, that may perhaps lay claim to all. On the other hand, there are certain colleges to which these criticisms are in no way applicable.

Let the profession, the colleges, and the boards unite their forces and work together in this matter, and a higher standard is bound to result.

PRESIDENT'S ADDRESS.

BY B. D. BRABSON, D.D.S., KNOXVILLE, TENN.

To the Members of the Tennessee State Dental Association.

THE time and place for holding our next annual meeting is the first Tuesday in May, 1896, in Nashville. The object of all such gatherings is mutual assistance, and the encouragement of a closer fraternal relationship to the end that we may become, in a true sense, promoters of the public good. No man alone is able to accomplish that which is possible with a strong combination of men who realize an obligation to labor together as one man for the success of any undertaking. The success of our meeting depends on the amount of *individual* effort. Each man should constitute himself a committee of one to see that everything within his power is done to make a profitable meeting. It is every *true* man's inherent and indispensable duty to do something for others that will add to their comfort. It is a great mistake, and more than that, it is a positive sin and disgrace, to be constantly absorbing, like a sponge, and never give out anything for the good of mankind. The parasitic life is contrary to every noble impulse, and to man's proper function, and only dwarfs the ambition to excel, which is one of the most potent agencies to success in any vocation.

I earnestly appeal to all who are interested in the welfare of our State Dental Association to respond promptly to the demands of this great work. I trust you each and every one will contribute something of interest, and help to give encouragement to the work of dentistry in Tennessee. I feel free to call on any dentist in good standing for his contribution to our efforts, and if for any lawful reason he is unable to respond he will be excused, but if no good reason can be assigned it will be my purpose to hold him responsible for a dcreliction of duty. By no honorable means can a man escape duties, and they never conflict. If perchance we "reap a harvest of barren regrets," as a result of our meeting in May, we shall know to whom censure belongs. Unless appearances deceive, we will have a profitable and pleasant meeting.

Selections.

THE ATTACKS UPON THE COLLEGES.

THE time seems to be approaching when those connected with our schools cannot, consistently with self-respect, attend dental meetings. They constantly hear themselves accused of dishonesty, rapacity, and greed, and at almost every meeting of importance are charged with general reprehensible conduct in the administration of that which is committed to their trust. Usually these charges are made by those who have no acquaintance with the manner in which the colleges are conducted. In the great majority of instances the accusers are men who never took a college course in their lives, or, if they did, it was away back in the days when our schools were in their infancy and before it had been possible for them to develop into what they are to-day. The most bitter of these traducers are too frequently men who are under obligations to the schools for honorary degrees, the only professional titles which they have, and who proudly wear the distinctions conferred by the hands which they turn and rend.

At the late meeting of the American Dental Association, however, a most venomous attack was made by a man who was formerly connected with a college and who bears a number of college titles, which should imply that he has a more complete knowledge of college matters than his remarks would seem to indicate. Dr. L. D. Shepard, of Boston, spoke as follows: "There is not a dental college in this country but is practically telling falsehoods all the time. The impression is given out, if not explicitly stated, that the fees charged in the infirmary are to cover the cost of material. . . . It is a downright falsehood, whether expressed or implied. . . . A college which presents to the public the idea that the services are gratuitous, for the benefit of the public or the education of the students, and which charges five cents for an oxyphosphate or an amalgam filling, overcharges from the cost of the material, and the balance goes to the profit side. . . . One college charged seventy-five cents a sheet for the gold filling, and this college, to make its infirmary more profitable, served out No.

3 foil, instead of No. 4, because it was cheaper. . . . For some years I have been an advocate of an answer to the question of why, in the minds of liberally educated people, particularly physicians and people most familiar with eleemosynary labors, we have not had granted to us the rank we claim, either as a liberal profession or a specialty of medicine. The great reason why that has not been done is that, in the line of thought in connection with medical services, we are not a liberal profession. Where in this country can you point to a dental hospital, pure and simple? There is not one. Look over the list of twenty-five thousand dentists, and how many are giving up even half a day per week for the service of the poor? You can count them on your fingers."

Dr. Shepard is an extensive holder of honorary degrees from these same institutions which he so anathematizes, unless he is very generally belied. How can he consistently make use of these titles derived from sources so dishonest and discreditable? He was formerly connected with a dental college. This is necessarily included in his anathematized list. If he is sincere in his belief, he should clear his own skirts by abandoning everything that might seem like complicity in such damnable cheating.

The remarks of this gentleman concerning hospitals would indicate that his knowledge of them is not a very intimate one. Medical hospitals always make a charge—usually so much per week—for care and attendance, and this must either be paid by the patients, through endowments, or by some special gratuities. Infirmaries usually give the services of the attending physician, but make a charge for medicines sufficient to cover the necessary expenses of their maintenance. The only exceptions are in instances in which such institutions receive grants from city or other authorities, or which are maintained by donations from charitable people. All infirmaries and hospitals must be self-supporting, so far as their running expenses go, unless they are supported by the public. The writer of this is a member of a regular hospital staff, and he knows whereof he affirms, so far as the city hospitals of one city are concerned.

But the latter part of his remarkable speech opens up a train of thought that it will be well to pursue a little farther. He says that one can count upon his fingers the dentists who give any considerable portion of their time to the service of the poor. He charges that we are not a profession, because we do no eleemosynary work. There is not a man who is prominently connected

with any dental college in the land who is not actively engaged in charitable professional work. How much of his time does Dr. Shepard give in that way? How much time is given by almost any one outside the colleges? The truth of the matter is that nearly or quite all the work for the poor that is done is at the infirmaries of the colleges. And yet Dr. Shepard broadly condemns the only class of men who, according to his own showing, are doing anything whatever to make dentistry a profession.

Let us look into this matter a little in the calm light of reason. Dr. Shepard claims that some colleges are making large sums from their infirmaries. It is probable that a very few of them may be able to show, not a large sum, but some balance, on the credit side. The great majority of schools find their infirmaries a burden, so far as revenue from them is concerned. The writer personally knows of one that has a good infirmary practice, and which showed a balance during the past year of one thousand dollars on the wrong side of the ledger, and even then it was not charged with its proportionate share of rent and heat and janitor's service, all of which should be a part of its legitimate expenses. Probably there are not five colleges in existence that would not gladly give the whole receipts of their infirmaries to any one who would pay their legitimate expenses.

Does this or any other calumniator of the schools know of a college that turns away from its doors any poor person who desires dental services? If any one does, let him at once publicly make the charges, and he will have the thanks of every good college teacher. The comparison of dental infirmaries is made with those of medicine. Do any of the men who make these accusations know any dental infirmary that makes a charge to the worthy poor for such services as are rendered by physicians gratuitously? We repeat that all medical infirmaries make a small charge for the remedies used, or for the packages in which they are put up, except such as receive city or other grants of money for their work. No dental infirmary receives any such assistance, although it is common in the different branches of medicine. Medical infirmaries make the same charges that dental infirmaries do, when they have no outside assistance to depend upon. Dental infirmaries do not give away gold or silver or valuable material, because there is no fund to provide it, and to do so is beyond their power.

Gold fillings are not included in the list of charitable gifts. People who demand gold in their teeth are supposed to be able to pay

for it. Charitable surgical infirmaries will cut off a man's leg for sweet charity's sake, but they do not furnish him with an artificial substitute, even in hospitals which are supported by the public. What dental infirmary makes a charge for extracting teeth? What school brings in a bill for treatment of any kind? What college demands any renumeration whatever for personal services rendered? If any such there are, they are beyond the knowledge of the present writer. They do make a charge for material furnished, precisely as do medical infirmaries unsupported by the public.

But this reckless reviler—and we have only selected him as a type of a class, because in a peculiarly public and offensive manner he has placed himself upon record—says that the infirmary which charges five cents for a cement or amalgam filling makes an overcharge. This is very speciously and unfairly put. He knows that the cost of the mere material forms but a small proportion of the necessary expenses. There are the items of rent, of fires, and the maintenance of the rooms, which are legitimately to be charged to the infirmary. There are the expenses of providing chairs and instruments, rubber dams, and a hundred other little things, a definite proportion of which must be charged against every paid filling inserted. Attendants must be paid, and the constant waste of material must be compensated. Then there is the material used for real charitable cases, from which nothing whatever is received. All these expenses must be met, and the infirmary has no fund to fall back upon, no public moneys to receive, no bequests from wealthy and well-disposed people. Just such inconsiderate charges as those brought by Dr. Shepard forestall the possibility of such things as that. People will not give money to institutions which are charged with rapacity, even though the unworthy motive that prompts the accusation should be patent to all.

If Dr. Shepard, and men inspired by the same idea, would remove the reproach which they aver rests upon dentistry because of the lack of charitable work, and would give of their means, provided they are unwilling to devote their time, charitable work could be more readily undertaken. How much has Dr. Shepard given annually to this work? How much will he give annually in the future? for donations of this kind must not be spasmodic. Infirmaryes cannot be sustained unless benefactions are continued. All that has been done in the past has been by the colleges and the men connected with them, and in this respect there is not a man prominently connected with a college who does not give a considerable

portion of his time to genuine charitable work. He must do so if his school is to live. He does not even receive indirect pay for it. He does it because he finds a field for charitable work, and he is enough of a professional man to devote himself to it. If he is not, he cannot long retain a place in a college. What does Dr. Shepard imagine would be the amount of the fees received if men like Garretson, Brophy, Marshall, Cryer, and many others obtained pay for all their surgical work? There is scarcely a hospital in the land, in cities in which there are dental schools, which has not upon its staff dentists who render a great deal of gratuitous service. And shall they receive only vituperation for their good deeds? Out upon the man who will not give credit when credit is due! Confusion to the dirty birds which foul their own nests! Dishonor to the men who malign the profession to which they belong, and who should every day of their lives thank God that they are permitted to be enrolled in the list of dentists, than whom no more honorable or charitable body, as a whole, exists upon this earth.

Five cents would be an overcharge for the material used in an amalgam filling, would it? Then what shall be said of the man who charges rich and poor alike five dollars for such a filling? He may urge that he does not pretend to work for charity, but has he no bowels of compassion whatever when people of moderate means are in his chair? Surely he might at least have charitable feelings toward the struggling institutions that charge twenty or twenty-five cents for the same.

The college infirmaries are often imposed upon by people who are able to pay fair fees, and for whose benefit they were never intended. Instances are common in which even wealthy people have put on working clothing and sought the infirmary, because they thought they could get good services, and get them for almost nothing. Dentists often complain with justice that the infirmaries get patients who should go to private practitioners. When such are detected it is common in the schools to charge them a heavy fee, and when they grumble, as growl they will, to inform them that when people who are able to pay go to the institutions intended for the poor they are expected to pay for those who can pay nothing themselves. No infirmary conducted by honorable men desires such patients, but it is impossible at times to prevent being imposed upon. If any one will inform colleges how they can prevent this, they will be only too glad to learn.

When such reckless and false charges are made as were shame-

lessly brought against the colleges in the New Jersey State Dental Meeting, and in that of the American Dental Association this summer, and as are continually being urged by men who can by no possibility be acquainted with the facts, it is time that a halt was called. There were no exceptions made, but all were included in the same category. Is it true that men who are spotless in every walk in life, who are held in honor by all classes, who have, perhaps, for many years gone in and out before the profession and the world blamelessly, is it necessarily the case that upon their joining a college faculty they lose all sense of honor? Are the best men in the profession scoundrels and liars and cheats because they are teachers? Are Taft and Cushing and Black and Gorgas and Hunt and Smith and Truman and Peirce and Morgan, with the late Winder and Eames and Chandler all swindlers? Yet that is the sense of the miserable libels that are periodically hurled against the colleges. No man believes these things. The very calumniators themselves cannot have any faith in their own words. It is time that these things should cease, if we are to retain the respect of the world. The reputation of the profession in a large degree is dependent upon our colleges. They should be sustained and applauded for the good they do, instead of being hindered and embarrassed by the miserable slanders that emanate from jealous sources. If they are to continue, who can blame the college men if they raise the cry, "To your tents, O Israel!" and refuse to sit in meetings where such falsehoods are continually repeated with impunity?—*Editorial in Practitioner and Advertiser.*

AMALGAM AND KINDRED POISONS.

BY HENRY SHEFFIELD, M.D., NASHVILLE, TENN.

HEALTH is a subject in which every individual is interested. How to secure it, how to protect it from impairment by poisonous substances and other detrimental agents, gives man the most anxious thoughts of life, and the philanthropist his most benevolent study. Filling carious teeth with amalgam is destructive to health; it, with other poisonous substances, will be the theme of this article.

The poisonous effects of amalgam are not generally recognized; is not cared for properly, therefore, its injurious effects should be as widely known as its use. One of the ingredients of amalgam is quicksilver, which will rapidly oxidize when exposed to the air. Those men who mine it and inhale its vapors are salivated; they

suffer from cerebral diseases, they are palsied, they sink into mærasmus, and die prematurely. Plants that are exposed to the vapor of quicksilver in a close room will perish in a few days.

It is but a few years since a merchant ship left San Francisco, and in her cargo was a large quantity of quicksilver. It was not securely confined; it escaped and ran into the hold of the ship. There it came in contact with bilge water, by which it was soon oxidized, and its vapor permeated the hull of the ship. The crew of the ship were salivated, the canary bird caged in the cabin, the pigs and the fowls, each in their own quarters, and the rats in the hold died from inhaling the poisonous vapor.

When quicksilver is dissolved in nitric acid the product is nitrate of mercury. Let me enumerate some of the poisonous effects of mercury on the human family. A metallic taste in the mouth, headache, soreness and sponginess of the gums, pain in the sockets of the teeth when pressed together, fetid breath, ptyalism, ulceration of the mucous membrane of the mouth, fauces, larynx, and bronchia, loss of voice, hectic fever, profuse perspiration, emaciation, and death. Quicksilver will dissolve in strong acid; it will oxidize in open air, in contact with fetid water, in the mouth when exposed to acids and vitiated secretions, and when swallowed with them is absorbed by the stomach, and its effects poisonous. The quantity of this oxide taken into the stomach in one week or a month will be comparatively small, but when swallowed, as it is for years, will certainly produce the poisonous effects of mercury, and in nearly the same order as heretofore enumerated. The mercurial effect of this oxide is not as rapidly and extensively developed in persons of bilious phlegmatic temperaments as in persons of nervous sanguine temperaments, who are by heredity predisposed to glandular and bronchial diseases.

"We know that great grief, fright, intense anger, may so poison the milk of the nursing mother as to carry death to the child. Prof. Elmer Gates, of the Smithsonian Institution, has not only isolated the poison and shown it in crystals, but has demonstrated that bad and unpleasant feelings create harmful chemical products in the body which are physically injurious, while good, pleasant, and benevolent feelings create beneficial chemical products, and these products may be detected by chemical analysis in the perspiration and urine." Now, if mental emotions can create poisonous chemical products, it is absolutely certain that chemical substances introduced into the blood will destroy its purity and create

disease in some part or organ of the body for which that substance has an elective affinity.

A great many persons possess an idiosyncrasy peculiar to themselves. One person will faint from one odor, another from a different one. One has fainted from the odor of copper, while hundreds of others have worn it in contact with the body, and it has relieved them of cramp or rheumatism or neuralgia. Those persons who have been salivated are particularly sensitive to mercury; in them I have frequently seen ulcers of the mouth and fauces produced by a few doses of mercury, each dose containing less than the one-thousandth part of a grain. Those persons who have been salivated and have amalgam fillings in their teeth, frequently suffer from mercurial rheumatism and other symptoms of that poison; in fact, some are walking barometers, and by their pain can foretell a change of weather. When the liver has been stored with atoms of mercury, it can be stimulated to increased secretion by acids, hence their frequent use.

The proverb, "The fathers have eaten sour grapes, and the children's teeth are set on edge," is an eternal fact which appears to be little known and less observed in this country. The effects of mercury and other poisonous substances is not confined to parents who use them, but are transmitted to their children, "even to the third and fourth generations." It is not, therefore, what comes out of the parents' mouths that defiles them and produces diseases in their children, but that which they put into them. The use of alcoholic drinks, drugs, tobacco, morphia, with many other poisons, is destroying the physical stamina and mental equilibrium of native Americans and making them selfish and evil. The free use of deleterious substances will degrade the natural body and make it an unfit temple for the soul.

If you would learn the effects of poisonous substances, examine carefully the children of native Americans who have used such enormous quantities of them. You will find them with enlarged tonsils, glandular swellings, skin diseases, catarrhal affections of the eyes, ears, nose, and throat, subject to croup, teeth and bones imperfectly developed; they easily succumb to inflammatory conditions, and marasmus ends their early career. Our asylums for the vicious, the insane, the orphan, the blind, the mute, the deaf are crowded with them. These facts show the rapid decline of native Americans (physically, mentally, and morally) during the past century, and if the same course is pursued of constantly swallowing

poisons, it will not require a prophet to foretell their ultimate extinction. "Weighed in the balance, and found wanting," is the writing on the wall; and unless philanthropists and reformers waken native Americans to their danger, they will not escape their doom.

For forty years patients have come to me with teeth filled with amalgam, each one suffering with some of the symptoms enumerated in poisoning by mercury. After the amalgam had been removed, and their teeth refilled with gold, they soon began to improve, and ultimately recovered, except those who had ulceration of epiglottis, larynx, trachea, and bronchia, accompanied with hectic. The facts presented with my own statement *is positive evidence*, and it cannot be lessened or destroyed by any amount of *negative evidence* or ridicule.

To my patients I state plainly the effect of amalgam fillings and its disastrous consequences. They then consult their favorite dentist, who declares their teeth to be in good condition, and he is acquainted with persons who have worn amalgam fillings for many years without any injury, and he knows it can do them no harm. To this statement I will reply that he cannot know (only believes) that any one person can resist the poisonous effects of any substance or perform any act whatsoever because another person has done so successfully. For example: Dr. Winslow, of Boston, could lift a dozen men at the same time, therefore my patient can do the same thing. Prof. Sandow can do the somersault with fifty pounds in each hand, therefore my patient can do the same thing. Such deductions are false, misleading, and harmful. Every individual is entitled to his own opinion and belief, in the defense of which he will often risk his own life. That does not prove his belief to be either true or false; it only shows his own firmness and fortitude. If it is founded on falsehood or superstition, it is worthless to others who know the facts.

Now it is utterly impossible to have a clear brain, with virtuous, benevolent, and honest impulses, surmounting a diseased and depraved body. We therefore sadly need schoolhouses where able preceptors can teach men, women, and children "the truth, the whole truth, and nothing but the truth," about physiology, toxicology, hygiene, and every other subject that has any bearing on health; how to protect and perpetuate it, and how to transmit it to their children.

Health is a universal need, as that only can modify avarice, lust,

and crime, and ultimately overcome them. When native Americans all become sound in body and brain, then, and then only, can they closely follow the examples of the Christ; then, and then only, will they practice religion in its purity; then, and then only, will justice, harmony, peace, and prosperity prevail among them.

**WHAT HAS BEEN DONE BY THE PROFESSION IN FRANCE ON
PYORRHŒA ALVEOLARIS.***

BY C. N. PEIRCE, D.D.S., PHILADELPHIA.

IT is now something over two years since considerable interest was manifested on the subject of pyorrhœa. Many papers have been since written, and much notice has been given the subject in the journals, but to-night I propose to present the views of a few of the early writers and some more recent ones of France, that these may be contrasted with what has already been published.

That pyorrhœa alveolaris is not a disease of recent origin or due to modern constitutional states alone is very evident from examinations of the skulls of ancient races. The alveolar process of crania, widely separated in time and locality, exhibited marked impairment in structure and hold a very close resemblance to that presented by more modern processes which were known to have been the seat of pyorrhœa during life. The earliest dental surgeon to record his observations was M. A. Fauchard, who, as early as 1746, fully recognized the disease in all its essential features, but failed to designate it by any specific name or term.

M. Jourdain, in 1778, described the disease as "a conjoint suppuration of the gums and alveoli." Regarding the inflammation and suppuration as expressions merely of a constitutional scorbutic state, he advised "the extraction of the teeth as affording the only possible means of cure."

M. Joirac, in 1823, called the attention of the surgical world to this form of inflammation, which, from its most characteristic symptom, the flow of pus, he gave the name of *pyorrhœo interalveolo-dentaire*. That he recognized this disease seems evident from the statement that the gums became swollen and spongy, the suppuration abundant, the teeth loose and painful, and finally fell from their sockets.

M. Marchal de Calvi, in 1860, spoke and wrote of the disease as a gingivitis, having for its results the expulsion of the teeth—"gin-

* Read before the Odontological Society of Pennsylvania.

givite expulsive," he termed it. He regarded the disease as hereditary and caused by the deposition of tartar, also that it was incurable unless all the teeth were removed.

In 1867 Dr. E. Magitot published his paper, which was the most complete systematic description of the symptoms and pathology of the disease which had up to this time been found in print. He commences by stating "that under certain circumstances individuals experience a premature, progressive, and continued loosening of one or more teeth, accompanied with abundant suppuration of the alveoli, with inflammatory phenomena of the gums, fungus excrescences, abscesses, and other peculiar phenomena, without the teeth themselves presenting any apparent structural change, and that this affection, if left to itself, finally ends in the loss of these organs." Magitot is fully impressed, as a result of his studies, that the gum, being in all cases only attacked subsequently, is not the real seat of the lesion. The disease with which we are occupied, he says, "seems essentially characterized, from an anatomical point of view, by a slow and progressive destruction of the periosteal membrane—a destruction of an inflammatory character, of chronic process, proceeding from the neck to the end of the root, and leading, without fail, to the loss of the tooth. This special feature, its mode of origin, and the precise seat of the lesion, seem to justify the name *alveolo-dental periostitis*. But notwithstanding its primary origin in the periosteum and its complications with the gum and bony alveolar wall itself, the study of the successive morbid phenomena does not allow us to admit, as various authors have claimed, that these parts are originally the seat of the disease."

We should only need for proof the isolated localization of the trouble in one or more teeth without necessarily being communicated to those adjoining, the situation of the anatomical lesion, the special sign of the lesion, and, lastly, of the fact of constant cure following the removal of the affected tooth. These reasons, he says, "should more than sufficiently prove that it is the tooth and not the gingival tissue or any other part which should be regarded as the seat of the disease." Dr. Magitot then gives a clear description of the disease's progress, which is not necessary to mention here, beyond his etiology, which he gives as follows:

"*Etiology.*—The causes of affection are quite complex, and should often be looked for not in a local condition of the mouth or gums, but in certain conditions of the general health.

"The disease ordinarily attacks either one of the teeth singly, or

several of them; but in this latter case the teeth affected are not necessarily contiguous.

"The age at which this affection appears is generally neither adolescence nor advanced age. The usual period is from thirty to fifty years. It seems equally frequent in men and women, and in the latter it often appears among the complex phenomena of the menopause.

"Certain intestinal phenomena are observed either in coincidence or in etiological connection; habitual constipation is noticed in affected patients. A physician of the Paris hospitals, Dr. Vidal, has noticed that these same patients often show dyspeptic phenomena. Perhaps these were due to difficulties of mastication. In all cases we have had personal opportunity of verifying this assertion. Gouty and rheumatic persons often show it. Those attacked by anaemia as a result of long illness are in the same condition, but there are no general troubles which exercise a more serious influence in producing the disease than albuminuria, and especially diabetes. By the first we mean here, of course, not symptomatic albuminuria, but Bright's disease, properly so called.

"In glycosuria this phenomena is absolutely continuous, and even constitutes one of the earliest signs of the diseased condition. We find, in fact, in the description of most authors, that at the beginning of diabetes the teeth are observed to loosen and decay. This assertion, as regards caries, is not correct, but the first is perfectly so, and corresponds to the osteo-periostitis, which follows in its development the same progress and advance as the general disease, to reach the terminating period of the latter in the loss of a considerable number or all of the teeth."

The treatment of pyorrhœa, as suggested by Dr. Aguilhon de Serran, is especially interesting. He speaks as follows:

"I shall limit myself to a short discussion of the nature of the lesions and the treatment by means of which I have succeeded in conquering them.

"Suggestions for treatment are naturally derived from anatomo-pathological study. In the first place you must relieve the fibrous mass of the liquids which separate it, then excite the vasomotor action and favor the formation of new vessels and fibrous tissues. Chromic acid fulfills these indications to a certain point: it hardens and retracts the fibrous tissue and acts on the membrane as a powerful revulsive, and has therefore in the hands of Dr. Magitot given very good results. But it only acts superficially, and is only of use

in the beginning of the disease. Besides, it cannot destroy the purulent burrows, the principal cause of the continuance of the trouble.

"The other method of treatment has fallen into disuse. In most cases it is necessary to extract the teeth, one after another; and, as they are generally free from all decay, patients only decide to have it done after suffering for years, or when the stomach becomes affected as a result of insufficient mastication.

"After many fruitless attempts I had recourse to a very simple mode of treatment, which answers at once the several indications of which I have spoken. It consists in traversing the bottom of the burrow by a seton of floss silk, which is left in place. It causes no inflammatory trouble. From the first the patient experiences great comfort. The unstable teeth, projecting outward, are rapidly brought back by the contraction of the fibrous tissue. Their firmness is perceptibly increased from the first hour.

"I have treated eleven patients in this manner, and I have always obtained the cessation of all pain and the strengthening of the teeth, in proportion, of course, to the extent of the destruction of the socket.

"As regards suppuration, the results are less satisfactory. It was only entirely stopped in two patients—those in whom the disease was farthest advanced.

"I was anxious to present to you a lady whose case is curious from several points of view. Unfortunately she is prevented by rheumatism from being present. When she consulted me this lady had been suffering for ten years. She could only eat soaked bread. She has only three molars, but she has all her incisors and three canines. She was treated for a long time with chromic acid. She even applied it so often that the roots, almost entirely exposed, are dyed a deep green. A few setons were sufficient to cause the disappearance of both pain and suppuration. The teeth are firmer, but, owing to the great reduction in their means of attachment in consequence of the absorption of the sockets, they will continue loose.

"Another patient was cured under the same conditions. All the others happened to be in a much less advanced state of the disease.

"From the first, without exception, the pain ceased and the teeth have become firm, but the suppuration reappears from time to time, in some cases at very remote intervals. I think this fact may be attributed to two causes: First, that I did not leave the setons in place sufficiently long. Fearing some trouble, I thought it prudent to remove them from the fifth to the eighth day; but it seems to

me there is no objection to keeping them in for several weeks. The second cause is the difficulty of the manual work. It is impossible to pass needles through the walls of the alveolus, and consequently to reach the lowest limit of the burrow. For this there must be invented a special instrument, which I have not yet been able to make satisfactorily.

"A general treatment should be prescribed according to the case. I have obtained good effects from chloride of magnesium, whose action on the smooth fiber is most decided, and which produces besides a laxative effect almost always necessary. I propose to try, with the same object, injections of ergotine."

This ends my quotation, but I would say in closing that I have been asked several times whether, after three years' experience, I have still the same confidence in constitutional treatment in connection with local treatment that I had in the beginning. I can say most emphatically that the success with which many patients have been rewarded has been most satisfactory. I am firmly convinced that in a very large proportion of cases of pyorrhœa, where they have not gone on to the extent of the teeth loosening all hold, by the sockets being completely destroyed, they are benefited by careful constitutional treatment, embracing proper diet and the application of proper remedies in connection with local treatment. So that every day I am applying these remedies, and the patients say that they are compensated fully in doing so.—*International Dental Journal.*

THE ANÆSTHETIC AND ASPHYXIATING EFFECTS OF NITROUS OXIDE INHALATION.*

BY J. D. THOMAS, D.D.S., PHILADELPHIA, PA.

Mr. President and Gentlemen: The past year having been the fiftieth anniversary of the discovery of the anæsthetic effects of nitrous oxide by Horace Wells, the subject has received a pretty thorough handling by gentlemen far better equipped for the purpose than your essayist; therefore it is approached with no little misgiving upon his part. But there is one phase of the subject which even yet is not clearly understood or accepted, and it would seem, while the present interest exists, that it is an auspicious time to endeavor to substantiate the correctness of certain theories of the physiological effects of nitrous oxide inhalation which the facts seem to

* Read before the Pennsylvania State Dental Society.

warrant, as well as to whom belongs the honor of the great discovery. There have been two theories advanced by gentlemen well versed in the knowledge of the effects of anæsthetics, and each theory is based upon exceedingly plausible reasoning for its acceptance; so that as yet there is no thoroughly established understanding of what should be accepted by unanimous consent as the true explanation of the physiological effects of nitrous oxide.

It will be the object of the present effort to endeavor to establish the fact that nitrous oxide possesses as true and specific anæsthetic properties, independent of the apparent asphyxiating accompaniment, as any of the anæsthetic agents now known. You all know that the two theories alluded to (both of which have many indorsers) are, first, that nitrous oxide produces its peculiar effects by deoxidation of the blood, or by true asphyxia from the want of oxygen; and second, that the anæsthetic effects of nitrous oxide are due to an inherent property of the gas, which is distinct from and independent of the asphyxial concomitant frequently observed in connection with its administration.

In the *Dental Cosmos* for May, 1893, Dr. H. C. Wood—than whom I know of no one better qualified to speak as a scientific authority—gave the results of a series of experiments upon dogs, by first administering pure nitrous oxide to the obliteration of the corneal reflex. Then the same with three per cent and five per cent of oxygen, and finally inducing mechanical asphyxia by means of complete stoppage of the oxygen supply. The results of these experiments with the different percentages of oxygen mixture show a variation in time required to produce insensibility to the corneal reflex from two minutes and fifty seconds to twenty-three minutes; but those with pure nitrous oxide and mechanical asphyxia varied from one minute and forty-five seconds to three minutes and twenty-seven seconds for nitrous oxide, and one minute and forty seconds to two minutes and thirty seconds for asphyxia. The close approximation in time between the latter two led Dr. Wood to the conclusion that the theory of deoxidation was the correct one; yet in nearly the same breath he admits being surprised at realizing the powerful effect upon himself of nitrous oxide with five per cent of oxygen, after only two or three deep inhalations, to which, had he given due consideration, he would at least have been led to question whether asphyxia was the only effect produced by nitrous oxide.

More recently, Dr. W. W. Belcher, in a paper read before a union

meeting of the Fifth, Sixth, Seventh, and Eighth District Societies of New York, at Buffalo, on October 13, 1894, gives the results of his personal experience in some interesting experiments of respiration nitrous oxide pure, and then by rebreathing air to the exhaustion of its oxygen; and he reports a striking similarity in the effects and sensations of each, which leads him to the conclusion again that the gas is asphyxiating and should be used with caution, but, carefully administered, it is the safest and most agreeable agent in use for producing unconsciousness; and yet, if its effects are produced by asphyxia alone, why should it be any safer or more agreeable than numbers of other agents which we know will produce unconsciousness from the same cause?

It seems to me that the phenomena which distinguish true anaesthesia from asphyxia have not received full consideration, and that their distinctive features and effects are not well understood. Anaesthesia is usually regarded as a condition of artificial sleep, but there may be several ways of producing artificial sleep or unconsciousness, which would not be a state of anaesthesia.

From an experience of considerably more than one hundred thousand personal administrations, there is recognized convincing proof that a subject in a state of anaesthesia is physiologically in precisely the same state or condition as one in a like degree of intoxication from the effects of the different forms of alcohol, only one is produced by inhalation and the other by alimentation; you have first stimulation and exhilaration, followed by intoxication, unconsciousness, and finally, if pushed to that extent, death as a result. The effects are produced and exhibited in process: first, by sensory paralysis, beginning at the periphery; simultaneously the cerebrum is affected, but loss of upper function or consciousness does not take place until a considerable peripheral anaesthesia has been produced. The motor nerves may yet retain their power, without the guidance of volition. Then the motor nerves, and finally the medulla, succumb, when respiration and cardiac force cease. The order of the progressive effects is precisely the same in each.

We have from the different forms of opium poisons effects exhibited in stupor and unconsciousness, and finally death; but no stimulation or intoxication. Similarly, we have like effects produced by the inhalation of poisonous gases, such as the fumes of sulphurous acid, mephitic gases, and carbonic acid gas. These are narcotic poisons producing their similar effects, one by alimentation,

the other by inhalation, the latter carrying with them a degree of asphyxia; but the final results cannot be ascribed alone to the want of oxidation. Asphyxia produced by the inert gases, nitrogen or hydrogen, or by mechanical obstruction of the air passages, results in unconsciousness, violent respiratory effort, stertor, muscular twitching, and sometimes convulsions, with death as a final result from lack of oxidation in the circulation; recovery from the unconscious period being attended by extreme lassitude, and perhaps complete prostration.

While it is true that the asphyxial concomitant is a feature of profound nitrous oxide narcosis—perhaps also of all anaesthetic agents—and it is likewise true that anaesthesia is a concomitant of the asphyxial state, it must be borne in mind that the order of appearance of anaesthesia and asphyxial symptoms in the two states noted is widely different. As I have before stated, peripheral anaesthesia is one of the earliest phenomena observed in nitrous oxide inhalation, while in true asphyxia anaesthesia is not produced until deoxidation of the blood has proceeded to a point of positive danger.

That nitrous oxide is an inert gas so far as its power to support life is concerned is accepted to-day as a truth, there being no separation of the oxygen from the nitrogen at the temperature of the human body; so that it need cause no wonderment that many accept the theory of its producing its effects by the want of oxidation, for the breathing of pure nitrous oxide unmixed with oxygen or atmospheric air will in some cases produce all the symptoms of asphyxia, such as stertor, constriction of the glottis, muscular twitching, and even convulsions; but here the similarity ceases, for the effects pass away in a phenomenally short space of time, leaving the patient with no perceptible after effects of lassitude and prostration, except in very rare instances.

The length of time shown by Dr. Wood's experiments with asphyxia upon dogs ranged from one minute and forty seconds to two minutes and fifteen seconds to produce annihilation of the corneal reflex. How long it may require to produce the same effect in man is of course problematical, but in a former paper upon the subject I recorded that a man exhibiting at the Walnut Street Theater under the pseudonym of "The Man Fish," performed several feats such as eating and smoking under water in a glass tank for the duration of three minutes and nine seconds, without showing any of the recognized symptoms of asphyxia other than considerable pallor of countenance and blueness of lips.

I have recently taken a record in one hundred cases of the time required in my own practice to induce anæsthesia, in which there was a judicious admission of air during the inhalation, and they were brought to the operating point of unconsciousness in from thirty-two to fifty-nine seconds. It is possible that, by the inhalation of an inert gas, the displacement of the oxygen in the lungs might produce unconsciousness in less time than by the voluntary suspension of breathing of this "man fish;" but comparing his time of three minutes and nine seconds and the one minute and forty seconds of Dr. Wood's experiment upon dogs for asphyxia, and the time—less than one minute—required by the inhalation of the gas in private practice, certainly shows that there were other influences at work than simply deprivation of oxygen; and it is just this lack of practical information which has led to the confusion in the theories alluded to. It is clearly shown that the gas possesses true anæsthetic properties, by its exhibition of exhilaration, intoxication, and unconsciousness; and it is equally true that it will cause symptoms of asphyxia, as shown by cyanotic appearance, stertor, muscular twitching, etc.; but the essential difference in the two states is evinced by the fact that the narcosis of nitrous oxide is capable of extension to the point of surgical anæsthesia before asphyxial symptoms supervene, the period of inhalation being so short that the risk of injury from asphyxia is so infinitesimally small that it is hardly worth considering. This is shown by the fact that in this country alone it is computed that at least nine or ten millions of people have inhaled the gas for oral and minor surgery at the hands of men of all grades of ability, with but three or four deaths resulting therefrom. That the gas is a thorough anæsthetic independent of the asphyxial accompaniment is still further proven that by a mixture of oxygen anæsthesia can be perfectly produced with little or none of the symptoms of asphyxia so prevalent when the pure gas is given. So thoroughly are they imbued with this idea in Europe that they use it altogether, Dr. Hewitt going so far as to state that in his opinion "the administration of nitrous oxid free from oxygen is irrational and unscientific." He does not say that oxygen will in all cases prevent a small degree of cyanotic appearance, but that the condition is such that even a member of the patient's family could witness the exhibition without becoming in the least alarmed, and that the anæsthesia produced is, if anything, more profound than with nitrous oxide alone.

The same results are obtained by the admission of a proper

amount of air during the inhalation. Blueness is in many cases scarcely apparent, while stertor, muscular twitching, and pharyngeal constriction are entirely obviated. Then, too, as further illustrating the fact that asphyxia is not the anæsthetizing force of the gas, two or three breaths of air, after the discontinuance of the gas, will restore absolutely the natural color of the blood; yet notwithstanding this obliteration of asphyxial symptoms we still have an operating unconsciousness sufficiently prolonged for twenty to thirty seconds, showing conclusively the true anæsthetic properties of the gas, and that the cyanotic appearance is only an accompaniment, the injurious effects of which are infinitesimal, and can be kept in complete subjection by combining oxygen or admitting atmospheric air. The latter method has its advantages over the oxygen, in that we can control each individual case by the proper admission of air, as occasion requires, thereby producing greater uniformity, while with the admixture of oxygen in bulk, the variation in time with the different degree of constitutional strength of the subject is sometimes annoying, and when applied by the duplex inhaler the frequent changes and manipulation of the oxygen supply are not reassuring to the patient. Again, comparing the similarity of effects of alcoholic intoxication and anæsthesia, we find many constitutions able to withstand the effects of an inordinate amount of whisky, while others are easily affected thereby; the one being nearly impervious to the diluted article, the other incapable of resistance. The same powers of resistance are presented with the gas or any anæsthetic. This explains why the admixture of oxygen in bulk would vary so much in different individuals. By using the nostrils as a valve and having the lips as a guide, the degree of cyanosis can be controlled, the stertor and muscular twitching excluded, and complete anæsthesia produced; the small degree of blueness being no disadvantage, and in the ordinary course of daily practice doing no harm. The fact of there having occurred three or four fatal cases admonishes us that there is a very small degree of danger attending, but unfortunately these were cases where conditions were not taken sufficiently into consideration, and where the possibilities of risk were not clearly recognized. The dangers are clearly from the production of asphyxia.

The cases requiring caution are the very anæmic, the very full-blooded, the slow breather, and persons of low vital force from grip or overwork. In the anæmic, the paucity of red corpuscles is so great that the least deprivation of oxygen is felt in the heart's

action, which may be depressed almost to the point of syncope at the expiration of the second breath. In such a case, in the event of death, it would be from almost instant heart failure, and the post-mortem would not show the effects of asphyxia in great discoloration of the blood and tissues, for the circulation would have ceased before such a condition could have been brought about, yet death would be legitimately from the want of oxidation. In the full-blooded, stertor and constriction of the glottis take place rapidly, and the difficulty of getting a sufficient amount of air in the lungs in time to reoxidize the blood might result in cessation of respiration, and finally death from asphyxia. A case of this kind would be more accidental than from the physiological effects, for if the tongue is pulled forward to open the air passages before the respiratory effort ceases, recovery is certain. In the slow breather, danger of suspension of breathing is as great as heart failure in the anæmic. In the experience of your essayist there are just as many people in apparent good health with weak respiration as there are with weak heart force; people who seem never to take a breath except with voluntary effort, and then not more than twelve or fourteen to the minute. The color of the lips would indicate that their blood is never fully supplied with oxygen, and they require the full amount of their capacity to keep them going, the same as the anæmic do for their heart action. In either case they are intolerant of an insufficient supply, so that suspension may occur early in the administration, the heart's action continuing from ten to fifteen minutes after. In the event of death in such a case, the post-mortem would undoubtedly show the results of asphyxia in the discolored blood and tissues. These cases have had much to do with the acceptance of the theory of asphyxia being the only effect of nitrous oxide inhalation.

In the case of low vitality, the dangers are less, but the results might be from prostration, the nervous system being too weak to throw off or rally from the effects of the anæsthesia, independently of any depressing effect of the small degree of the accompanying asphyxia. Such a case is reported at the meeting in Buffalo; the lady a professional nurse, who, like many of her profession, presented appearances of overwork, to which was added severe suffering from neuralgia, for which a resection of the inferior dental nerve had been advised after some months of suffering, loss of strength and health. In the meantime, the cause of her trouble was located in a third molar. On the day of the extraction she

had taken three-quarters of a grain of morphia; complete prostration followed the operation, the respiratory effort entirely suspended, pulse hardly perceptible, and had it not been for the continued use of the Fell apparatus for artificial respiration, the patient would no doubt have died. Cases where such results might be looked for were quite numerous during the grip epidemic of 1891 and 1892, but whether from grip or other enervating conditions, the results might be the same. In my own practice, two cases in this condition were advised against taking the gas; one died within twenty-four hours, and the other three days after leaving my office. Had I given the gas, even had they recovered at the time, death would no doubt have been ascribed to the effects of the gas.

Attention is called to these cases to illustrate the fact that some knowledge of conditions must be had, so that we can use discretion and avoid the dangerous results, by first recognizing the subjects which are likely to be so affected, and secondly by recognizing the symptoms of danger as they approach.

From the foregoing and from practical experience, it would appear to point to the conclusion that the inhalation of nitrous oxide does produce perfectly legitimate anaesthetic effects as exhibited by stimulation, intoxication, and unconsciousness, and, there being no separation of the oxygen from the nitrogen at the temperature of the human body, it is practically an inert gas so far as oxygenating the blood is concerned, which will, when its administration is pushed far enough, develop the asphyxial condition, the evil effects of which can be rendered practically *nil* by the proper combination of oxygen or air. Inasmuch as the condition of true surgical anaesthesia precedes that of asphyxia, the latter should never be produced; and when it is, can only be attributed to a lack of intelligent understanding of the physiological action of the gas.—*Dental Cosmos*.

COMMERCIAL ELECTRICITY AND THE APPLICATION IN DENTAL PRACTICE.*

BY L. E. CUSTER, B.S., D.D.S., DAYTON, O.

THE ever increasing field for the application of the various forms of electricity in dental practice makes it necessary that the dentist should become familiar with the common electrical terms and the different commercial currents in general use.

There are three terms which are the foundation for electrical calculations: the volt, ampere, and Watt.

* Read before the First District Dental Society of Illinois.

The *volt* is the term for pressure, and we speak of it just the same as we do of water in a pipe at so many pounds pressure. The *ampere* is the term for quantity, and to use the same illustration, the ampere represents the carrying capacity of the pipe or cross section of the stream of water flowing. The *Watt* is the product of the volts multiplied by the amperes—that is, the quantity of water which flows through the pipe is equal to the size of the opening multiplied by the water pressure. In other words, the Watt is the unit of electric power, and 746 Watts are equal to one horse power. It does not matter how the Watts are made up, whether more of volts or of amperes. So long as the product of the pressure (volts) multiplied by the quantity (amperes) is equal to 746, it is one horse power. A current of 75 amperes flowing under a pressure of 10 volts will do the work equal to about one horse power, or a current of one ampere at 746 volts will produce one horse power. A 16 c. p. lamp consumes 55 Watts. At 110 volts that would be half an ampere each, and 13 such burning at one time represents an expenditure of one horse power. Or a current of 10 amperes at 110 volts is equal to 1100 Watts, or one and one-half horse power.

There are five different currents in common use: the arc light current, the 500 volt or car current, the 220 volt or power current, the 110 volt constant or Edison current, and the 52 volt alternating or Washington current.

The arc current is familiar to all, and it affords an interesting example in electric arithmetic. It requires a pressure of 45 volts to leap across the distance between the two carbons of the lamp to give the light we see, but to give a steady light there should be 10 amperes of current. These 10 amperes of current are started out from the power house, and for every arc lamp through which they pass there is required an addition of 45 volts. That is, a pressure of 45 volts is required to jump the arc and maintain it in the first lamp. This lamp must be kept burning, and when the second lamp is reached the dynamo quickly makes an additional 45 volts, and so on all the way around the circuit back to the power house. So that, if there are 50 arc lamps in the circuit, there would be required 50 times 45 or 2250 volts to send a current of 10 amperes through the 50 lamps. The high voltage of the arc current is the cause of the danger. It is volts that kill.

The 500 volt current is used mostly for street cars and heavy power work. The high voltage is used here for the same reason

that it is more economical to carry water in small pipes at high pressure than in large pipes at low pressure, as well as the fact that the motors are better proportioned for their work when operated by this current. It will be noticed that these cars are always lighted by five 110 volt lamps in series; that is, it requires 110 volts to properly burn one lamp, but with 500 volts pressure the current can go through one and then another till it has passed through five lamps, and each one will burn but little below its intended capacity. If four lamps were used they would soon burn out, because there would be 125 volts to a lamp instead of 110.

The 220 volt current is mostly used for power purposes, because it can be carried on a rather small wire, and is not especially dangerous to life. This current is not, however, very common.

The Edison or 110 volt current is, as you well know, almost universally used for incandescent lighting and light power. This current does not differ from any of the preceding except as to voltage. It is sometimes called the constant current, because the current is continually flowing in one direction. The pressure is set at 110 volts, because it is found to be economically distributed at this voltage to that point where the voltage drops below 100. For this reason it is always used in small plants, or in large plants whose wires do not run far from the power house, in thickly settled centers, and in hotels and public buildings.

The 52 volts or alternating current is used for incandescent lighting and light power also. This differs from the preceding in many ways. Instead of its flowing in one direction it flows alternately in one direction and then in the other. This current is distributed in an entirely different manner from the others. A current of very high voltage is conducted to what is known as the transformer, passing through which it induces an extra current in an entirely independent coil of wires, and this new or induced current is the one carried into the house for use. So that the primary current of very high voltage is carried on a comparatively small wire for miles about the city at quite a small expense, and gives the consumer a light which would be impracticable with a constant current at that distance from the power station. This current is used mostly in small towns and in scattered suburbs.

Of the above-mentioned currents the Edison or 110 volts constant potential current is the ideal one for dental purposes, and fortunately it is the most common of all. It is so easily made that nearly every office building operates its own plant. Or the dentist with a gasoline engine and dynamo can be independent at a very small cost. The current is safe to life, and its wiring is quite simple. It may be used for power, for light, for cataphoresis, for electrolysis, and for heat equally as well. In fact, it seems as though this current were intended for dental purposes alone.

Extracts.

A PHILOSOPHICAL EXPLANATION OF A NOTED MIRACLE.

A SPECIOUS *simulacristie* has lately come to grief and punishment, after worrying the great Parisian neurologists and after having been the subject of the most remarkable curative miracle ever performed at the grotto of Lourdes. It appears that this expert malingerer, a hatchet-faced and hypocritical individual named Delanoy, first appeared at the Saltpetrière in 1883, during the services of M. Charcot. From this hospital he went to the Hotel Dieu, where Dr. Gallard treated him for three months. Two years later he turned up at the Necker Hospital—always with locomotor ataxia—where Rigal subjected him to the most rigorous antiataxia treatment, the liberal application of the actual cautery on both sides of the spine, which our impostor suffered with heroic fortitude for four months, rather than go out and work. From the Necker and baffled Dr. Rigal, he was next found at the Laénnee Hospice, where the great Dr. Ball industriously filled him with nitrate of silver, belladonna, and morphia, to no purpose. The Charité was his next abiding place, but Ferrecol decided that the man was an incurable, and had him transferred as such to Bicêtre, from whence he managed to escape. The next year he appeared at the Cochin Hospital, during the service of the late Dujardin-Beaumetz, who in the course of two months suspended the martyr hero by a French modification of Sayers's suspension apparatus some fifty-two times without any seeming benefit. Having exhausted the Paris hospitals, as well as the patience and ingenuity of their great masters, Delanoy concluded that it was about time to recover, and to that end he had himself transferred to Lourdes, where he arrived in August, 1889. As he dragged himself to the grotto the seeming torments which he endured wrung yells of agony from the sufferer to that degree that they called the attention of all the assembled pilgrims. At the grotto he received the sacrament, and with a cry of joy suddenly regained his normal health and strength.

The clergy of Lourdes made great capital out of this miracle, and it goes without saying that Charcot, Ball, Rigal, and all the-

great neurologists were sorely puzzled. The man was evidently so much under the protection of the saint that soon after his recovery he received letters with checks and postal orders asking for his prayers and intercession for the writers, who were either sick or crippled, the latter judging that one who had been so highly favored and miraculously treated could not be without influence with the saints. In time, however, he was forgotten, and to live without work induced him to retake his old vocation of hospital tramp, and as such we next hear of him on the service of Dr. Dubuisson, at the Asile Sainte Anne, with his old locomotor ataxia in prime working order, where while being closely watched—he having been recognized as a skillful malingerer—he stole a large sum of money from the pharmacist of the institution and was arrested, and all his deceptions unveiled. The clergy of Lourdes had looked upon his cure as a most conclusive evidence of the superior power of theoretic medicine and of miracles over purely philosophical medical science, but the exposure of the deception has cast a damper over the zealous and pious believers in miracles, as well as an inescapable gloom and discontent over the fathers at Lourdes. After his arrest it was learned that as an evidence of his great gratitude, while at Lourdes and while being entertained by the admiring clergy, he had relieved a couple of them of all their surplus wealth.

DIED UNDER GAS.

MRS. FLORA JOSEPHS, of No. 418 East Eighty-second Street, died yesterday afternoon in the office of Dr. Robert Wolf, of No. 315 East Eighty-sixth street, while under the influence of nitrous oxide gas. She was twenty-two years old, and was the mother of a four-year old boy. Her husband has for some years been employed as a clerk in a grocery store, but has been out of work for the last two months.

Mrs. Josephs went to Dr. Wolf's office about half past three o'clock yesterday. She told the dentist that she had been suffering for a long time from four badly decayed teeth, and wanted them extracted. She neglected to give Dr. Wolf her name, simply saying that Mrs. Steinhart, a patient of his, had sent her to him. She was afraid of the pain of having the teeth extracted, and asked Dr. Wolf to give her gas.

"I asked her if she had ever taken gas," said Dr. Wolf last night, "and she told me that she had not. I questioned her closely about

the state of her health, and made the usual examination to ascertain whether she could stand the anaesthetic. She appeared to be healthy in every way. Just before I administered the gas she said she would like to have her husband present, and I told her to go or send for him if she wished. She talked about it for a moment, and finally decided not to send for him. I administered the gas carefully, and noticed that she seemed to take it very easily. She fell to sleep very peacefully, and kept quite still while I extracted the teeth. Just as I was finishing the operation I noticed that she stopped breathing. I rang for assistance, and several ladies who live in the house came in. One of them called Dr. Churchill, whose office is next door. In the meantime I had given the patient repeated hypodermic injections of whisky, and had lowered the back of the operating chair so that the blood would go to her head. When Dr. Churchill came in we tried artificial respiration, but with no results. Finally I gave her an injection of cocaine, and later more injections of whisky. We worked hard for an hour to revive her, but it was no use."

When asked what he thought the cause of death was, Dr. Wolf said that he believed Mrs. Josephs had some organic disease of the heart. The gas used was the same kind, he said, that he had used for four years.

Coroner O'Meagher, who had been notified by the police, reached Dr. Wolf's office about half past four o'clock. After examining the body and questioning Drs. Wolf and Churchill, he gave a permit for its removal. The Coroner exonerated Dr. Wolf from all blame, saying that the woman's death was purely an accident.

Dr. Wolf went to Josephs's house and told him of his wife's death. In the conversation which followed it was learned that Josephs, who is thirty years old, had been befriended by Dr. Wolf's father when he first came to this country from Germany.—*New York World*.

[This is only another case in which the asphyxia produced by the gas was carried beyond the point of life for recovery. Whenever the affinity of the blood has been so weakened by deoxidation that it fails to take up the oxygen from the atmosphere, then the patient sinks, and all the powers of earth cannot restore to life.

This woman was in good health, but what of that if deprived of the force of life, which is free oxygen, as is always the case in getting anaesthesia by the use of nitrous oxide gas? Therefore, as Dr. Richardson says, "its use should be prohibited by law."—EDITOR.]—*The Dental and Surgical Microcosm*.

THE RELATION OF LABOR TO NERVOUS DISEASES.

PROF. COGNOTTI DI MARTIIS, in showing that each occupation, mechanical or intellectual, has its peculiar nervous disease, draws a harrowing picture of the dangers attending modern industrial life. He begins by discussing the perils to the nerves of open-air workers. Lightning is one of these. It kills twenty-two persons annually in England, and seventy-one in France, and leaves many of those who escape death with shattered nerves for life. The malarial fevers common to open-air workers, especially agricultural laborers, are in many cases followed by severe nervous disorders, and there is a true neural paralysis resulting from these fevers. Tetanus, the germ of which thrives in swampy ground, and sun-stroke are both followed by distressing nervous disturbances. Strong light produces a nervous affection of the eye, known as snow blindness, and one form of the disturbance, to which foundry-men are very subject, makes the victim practically blind toward sunset and after nightfall. Miners have painful nervous affections of the eye, but from opposite causes. Their troubles are in great part caused by the rarefaction of the oxygen in the air in which they work, are accompanied by strange illusions, such as the apparent swaying back and forth of the objects in the field of vision. Miners working in mountain shafts have the so-called mountain sickness, accompanied by headache, writhing of the body, hesitancy of movement, heart affections, nausea and vomiting, sometimes followed by insensibility, delirium, and coma. Aeronauts have the same trouble. Men who work under high atmospheric pressure are even in a worse plight. The voice becomes metallic, utterance is difficult, and, in the case of some, sounds impossible; hearing is impaired, muscles are knotted, smell and taste are lost, and the laborer handles his tool with difficulty. Seasickness is another nervous affection that has always defied the doctors, and no satisfactory remedy has ever been found for it. Too much school work causes epilepsy and St. Vitus's dance in children, besides impaired sight, headache, stammering, insomnia, and fleeting hallucinations. Under the intense strain of modern commercial life the business man becomes a victim to neurasthenia, and loses the power of mental application. The speed at which railway locomotives are driven on certain lines utterly breaks down the nerves of the drivers in a short time. The intense preoccupation and great manual exertion of the pianoforte player often produces paresis. Clarinet players have spasms of the tongue. Sewing

machine makers, telegraphers, cigar makers, button makers, and others who have to maintain a high speed at their work, are subject to nervous disturbances immediately affecting the part of the body especially under strain, but extending to other parts. Dentist's leg is a paralytic affection of parts kept long under pressure. Hammer paralysis comes to the man who has one arm constantly plying a tool of the striking kind. The professional bicyclist is subject to shocking nervous maladies. He is likely to suffer especially from excessive weariness, loss of the power of attention, of critical sense of judgment, and of all the high psychic manifestations. Persons accustomed to use the voice a great deal are subject to laryngeal spasms. Watchmakers and others who use strong magnifying glasses become nearsighted. In fact, every occupation exacts its penalty, physical or mental, and the shortening of the hours of labor seems to be the only remedy in sight.—*The Pacific Record.*

THE USE OF THE BICYCLE.

In the *Journal des sciences de Lille* M. H. Lavrand gives a résumé of a discussion in regard to the bicycle which took place at a recent meeting of the *Societe de medecine*.

M. Lucas-Championniere presented the question from a hygienic point of view. The bicycle, he said, had been condemned as a means of exercise for woman, and had been thoughtlessly compared to a sewing machine, to which it was not at all analogous. It had been said to cause deformity, but this accusation showed a want of reflection and a profound ignorance of anatomy and physiology. In reality, all the muscles came into play in order to propel the machine and to keep one's equilibrium; consequently the vertebral muscles could not increase in size and power. The first action of the bicycle was to develop the muscles, not only those of the legs, as was commonly believed, but all the muscles of the body, and in this exercise M. Championniere thought that we had the most perfect method for muscular development. Its action on the general health was also evident. The manifestations of nutrition were profoundly modified; an examination of the urine had shown this. The increase of the proportion of urea had indicated a greater waste. The influence on the heart was also very evident, and any excess in this exercise was prejudicial. One of the most valuable advantages of this form of exercise, however, was that it put the heart into a good condition of resistance. With regard to the

benefit to the lungs, it might be said that the good results were almost immediate, if care were taken to avoid the chill which was always apt to follow any prolonged exercise.

M. Marcel Brand thought that this form of exercise was the best that could be employed in the treatment of the vicious habits of adolescence, and he cited several cases in which recovery has been obtained when all other treatment had failed. The majority of affections dependent on the diminution of nutrition were favorably improved by the motion of the treadle. With regard to neuro-pathies, he said, the most favorable results had been obtained after a moderate use of the bicycle, and certain tabetics had derived much benefit from its use.

M. Bouloumie presented the subject from a therapeutic point of view. He stated that he had recommended the bicycle to several gouty persons who, after using it, had not suffered so much with stiffness in the knees and in the tibiotarsal articulations, which had become much stronger and more flexible. The general condition also had been benefited. In persons suffering with subacute nephritic colic from uric acid gravel, and presenting frequent and continual pains in the kidneys, without renal inflammation, the exercise seemed to facilitate the passage and expulsion of the calculus and to diminish the pains. In such cases the patient must be warned against excessive exercise, as any fatigue was extremely harmful. For persons affected with urinary and digestive disorders, principally liver troubles, an upright attitude in the saddle, with the body resting squarely upon the ischia, was absolutely indispensable. In this way all parts of the body would contribute to the maintenance of the equilibrium, the abdominal organs were not compressed, the action of the diaphragm was not hindered, and the circulation was not impeded at any point. This exercise, on the whole, said M. Bouloumie, was one which favored the development of the muscles and regulated the principal functions, and it could be recommended from a physiological, hygienic, and therapeutic point of view, subject to these conditions: 1. A good position in the saddle. 2. A proper saddle. 3. A moderate rate of speed.—*N. Y. Medical Journal.*

DIED IN A DENTIST'S CHAIR.

MRS. CHARLES GRIER died yesterday afternoon shortly after three o'clock while in a dentist's chair in the office of Billings & Sherraden, dentists. She went to have teeth extracted, and was

put under the influence of chloroform. It was from the effects of chloroform that she died.

Mrs. Grier went to the office shortly before one o'clock, and was attended by Dr. Sherraden. She had two teeth pulled, and then said that the operation pained her too much, and said she wished to be placed under the influence of an anaesthetic. Dr. Sherraden told her that he would not place her under the influence of any drug, and tried to induce her to continue the operation. Dr. Arnold, who has an office in the building, was called and examined Mrs. Grier. He told her that she could safely take chlroform, but refused to administer it. Then Mrs. Grier asked to have Dr. R. C. Moore, who had attended her in the past, summoned.

Mrs. Grier waited in the office until two o'clock, when Dr. Moore arrived. He examined her and advised that she be placed under the influence of chloroform by means of an Eismark inhaler. One tooth was extracted by Dr. Sherraden, and, as is usual, the pain brought the patient to consciousness. Dr. Moore again placed the inhaler to her face, and the dentist extracted another tooth. Instead of struggling as she did before, Mrs. Grier lay perfectly quiet, and Dr. Moore, who was holding her hands, noticed that she stopped breathing. As this is not unusual in such cases, Dr. Moore was not alarmed, and told Dr. Sherraden to hasten the extraction of another tooth, thinking that the pain would bring the woman to consciousness. The tooth was extracted, but, after giving two or three gasps, the woman lay dead.

This is the statement made by Drs. Sherraden and Moore. "I have placed hundreds of patients under the influence of chloroform in thirty years' practice," said Dr. Moore last night, "and this is the first time I have had a fatal result. If I had treated the woman in the old way, and as many physicians do now, by placing a handkerchief saturated with the drug under her nose, or dropped the drug from a bottle, I might blame myself; but I did not do that, and have not done so for some time. I used the latest method approved by physicians, the Eismark inhaler. Moreover, I used a very small quantity of chloroform, less than a teaspoonful. I have attended the woman, and never found that she was affected with heart disease, and I found her in a perfectly healthy condition when I examined her before the operation. I am anxious to have the case investigated, as I cannot see where I can in any way be blamed."

[The cause of this death—judging from the evidence herein con-

tained—would seem to have been syncope with partial narcosis. Had the administrator, on the discovery that the patient showed extreme pallor and that the functions of life had in a measure ceased, quickly held the patient up by the heels and thrown cold water in her face, or had quickly applied the galvanic battery, she might be still living. But any delay in such cases is very likely to bring fatal results. Describing the effects of the anæsthetics to the patient before administering oftentimes prevents the syncope as caused by fright.—EDITOR.]—*Dental and Surgical Microcosm.*

TO SECURE A RUBBER DAM.

A YEAR or so ago Dr. Hetrick gave a hint as to the value of sandarach varnish to secure a rubber dam to the teeth, instead of the painful silk ligature. It was one of the most valuable items I ever received; and if it has not been universally adopted, it should be. It is absolutely demanded that dentistry should be made as easy as possible, and any neglect is scarcely less than criminal.

Many patients in a country practice are so situated that a prolonged course of treatment for aching or ulcerated teeth is out of the question. When operating for such a one, and an exposed living nerve is found, it can almost always be successfully removed at once by injecting a solution of cocaine, under strong pressure, so that it is forced up to the apex of the root; otherwise the removal will not be painless. When a fragment of these fresh pulps resists all efforts of the broach to effect a removal, the heating of the Evans root-canal dryer and passing up into the root brings the fragment away at once. The potassium and sodium compound of Dr. Schrier will also disintegrate one of these fresh pulps so that it can be taken out at once.—*Dr. Bergstresser.*

MEN THAT SHOULD NOT BE TOLERATED IN THE DENTAL PROFESSION.

THE man who is never tired of repeating to everybody and at all hours of the day that he has been practicing dentistry for forty years.

The code of ethics man who believes that all advertising dentists should be hanged and quartered.

The paper-reading fiend that on every available occasion comes up with a paper bristling with scientific terms and with all the longest words we have in the English language, yet in substance

says nothing that all his hearers haven't forgotten before they left the dental college.

The man who discusses such papers with the sole object of seeing his name in print.

The dental society men who mutually admire and soft soap each other at every meeting or convention. I would suggest that these men found a dental mutual admiration society, and relieve us from the suffering of having to read so much trash in the dental journals.

The tortuous nerve canal perfect-filling crank.

The man whose papers have been written by somebody else and are produced as his own.

The man who cries down bridge work because he doesn't know how to do it.

The man who claims that no dentist should undertake to perform any dental operation till he can do it in the most approved manner. This reminds me of the old woman who wouldn't allow her daughter to go bathing till she had learned how to swim.

The man who never makes a mistake, and who has never had a failure to record.—*Francis Eschauzier, San Luis Potosi, Mexico.*

THE BLOOD ALTERATIONS OF ETHER ANÆSTHESIA.

J. CHALMERS DA COSTA concludes a paper on this subject in the *Medical News* as follows:

“1. Etherization produces a marked diminution in the hemoglobin of the blood.

“2. The red corpuscles and the hemoglobin are especially affected in blood previously diseased—in such conditions, for instance, as anaemia.

“3. Irregular reports are due to faulty observation, to the presence of altered hemoglobin in the blood, to the faulty aberration as to the color of a Fleischl instrument, or to taking the blood before anaesthesia is completed.

“4. The white corpuscles show irregular changes which are not characteristic, and exhibit variations not more pronounced than would be found in the same number of samples of normal blood on different examinations.

“5. Age does not apparently influence the results.

“6. Ether pneumonia may be possibly due, in some instances at least, to the action of intense cold on the lungs produced by the action of ether vapor.

“7. Edema of the lungs may arise from contraction of the pul-

monary capillaries, thus producing a loss of *vis a tergo* and damming up of blood in the veins. Furthermore, the same condition may produce sudden paralysis of the heart.

"8. The often quoted observation as to the effect upon the hemoglobin of shock and hemorrhage requires enlarged repetition upon human beings before the statements can be accepted that hemorrhage causes a great fall in the amount of hemoglobin, but that shock does not affect it.

"9. The chilling of the blood stream may be responsible for the nephritis that occasionally follow etherization.

"10. Prolonged anaesthesia profoundly deteriorates the blood and strongly militates against recovery; hence rapidity of operation is most desirable."

AN EASY METHOD OF REFITTING PLATES.

AT a meeting of the New York Odontological Society Dr. Davenport gave the following method for refitting plates. He said: "Within the last week I have been so pleased over the accomplishment of something which I have not often done that I decided to speak of it here. A lady who had been for some years wearing a full upper denture recently consulted me because the plate would not keep its place while eating or talking. While the plate fitted accurately and had good suction when made, it has recently —the mouth being very soft—become exceedingly loose, and it seemed imperative at first to make a new plate, very much against the wish of both the lady and myself, for the proper arrangement of the teeth in her case takes much time. As it happened, she possessed a full rubber plate, which she had not worn for a number of years, and the teeth on that plate were satisfactory to her in appearance, but of course the plate did not fit. I suggested experimenting with the old plate, to see if I could not so change it that it would answer her purpose. A plaster impression of the mouth was taken, the band of the plate was cut down almost to the teeth, and the entire center cut out, so that nothing was left but sufficient rubber to hold the teeth in place. This being placed on the plaster cast and waxed up as usual, was next tried in the mouth and slightly changed to obtain the correct articulation, after which it was finished in the usual way. The result was satisfactory, and the whole thing was accomplished with small expense."—*From International Dental Journal.*

Editorial.

ATTACKS ON COLLEGES.

THE remarks of Dr. L. D. Shepard, of Boston, in the discussion of Dr. Stainton's paper made at Asbury Park last August, have called forth denials in strong editorials from at least two dental journals. One of these we present in this issue, because we believe most it contains is true—if not all of it—and to allow the contrast to be made by many in the profession who have assumed the right to publicly censure dental colleges whenever the occasion will permit. These self-appointed “public scolds,” in their writings and in debate, indulge their extravagant criticisms usually under the dignified title of “Dental Education.” From their high (?) positions of professional preferment, dignity, attainment, and ethical environment they forget or fail to see that they are condemning and casting slurs at the very sources of all their boasted knowledge and exalted professional position, and that the shadows that are cast they too must sit under. And when the facts are perverted wholesale denunciations display ignorance, bad judgment, a jealous, unkind spirit, and are retroactive, injuring no one so much as him who forgets his professional pride and thoughtlessly or wantonly degrades his profession in the eyes of an unthinking public.

The animus and spirit of such exhibitions cannot always be conveyed by words, nor is it possible ever to overcome the evil that follows them. The injury is a consequence that cannot be averted or the wrong righted. And poor human nature repeats to the echo a scandal, when the good is whispered only to the closest and most confidential of friends.

The conduct of the infirmaries of dental colleges is most expensive, while their existence is a recognized necessity. We speak with authority of but one: that connected with Vanderbilt University. With eighteen hundred patients in 1894, the sum expended to maintain it was more than \$2,000 in excess of all receipts.

We believed at the time that Dr. Shepard had made a mistake, and, while we admire him for his many admirable qualities and deplore the position he has assumed and in which he has placed himself, we feel most certain he is wrong and has wronged most of the dental schools of the United States. The columns of the HEADLIGHT are freely extended to him for an explanation, and at the same time we assure him of feelings most friendly.

DEATH FROM CHLOROFORM.

WE regret to chronicle the loss of a valuable life from choroform. Miss Anderson, an estimable young lady of this city, a professional nurse at the City Hospital, died in the dental office of Dr. William L. Brown, while under the influence of the anæsthetic, on December 17, 1895. Dr. Brown has kindly furnished us with the facts in the case as follows: Miss Anderson insisted upon the administration of chloroform, objecting to the disagreeable nausea resulting from the use of ether, and requested Dr. Brown to summon her physician, Dr. Eppler, who soon arrived. The operation was for the removal of the root of a tooth preparatory to the wearing of a plate. In spite of the positive objections of both Drs. Eppler and Brown, who strenuously urged the special dangers of chloroform in all dental operations, Miss Anderson asserted her willingness to assume all the risk, and that she was fully cognizant of the peril incurred. Dr. Eppler therefore procured the chloroform, and administered the same carefully. Dr. Brown finished his operation successfully, but to their mutual surprise and horror the young lady expired from cardiac paralysis. Every available method known to the medical and dental profession was used, but failed to resuscitate the vital spark. Thus another sad chapter is added to the formidable list of deaths from chloroform.

THE CARE OF CHILDREN'S TEETH.

IN this matter Tennessee has certainly taken a step in advance of her sister States, and recently inaugurated a plan of bringing the matter before the school children of the State worthy of a trial by others. The address to instructors in public schools prepared by the Board of Dental Examiners at the instance of the State Dental Association was published and circulated over the signature of the State Superintendent of Public Instruction. In this way the teachers and pupils had their attention directed to the matter in a most official manner, and the object accomplished by giving the address the widest possible circulation.

Supt. Gilbreath deserves credit for his ready reeognition of the words of wisdom the circular contained, and praise for his hearty coöperation with the Board in its efforts to present to the children of the State information on a subject of great concern to them and their future comfort and welfare.

The editor of the *American Dental Journal* in the December num-

ber in an editorial on this subject quotes the essay in full and without comment.

SUPERANNUATED.

DR. J. D. MILES, of Vicksburg, Miss., after an active practice of more than forty years, has concluded to retire and rest upon his well-earned laurels. No member of the profession in his State has been more devoted to the elevation of the standard of the science and art of dentistry. He is familiarly spoken of as the "Father of Dentistry in Mississippi," and has long been recognized as a leader of his profession, especially as the founder of the State Dental Association. We hope that he may yet be spared many happy years to gladden the hearts of his friends and associates.

A WELL-DESERVED PROMOTION.

WE are pleased to note the appointment of our friend and former student, Dr. J. R. Southworth, of Little Rock, Ark., to the position of Dentist to the Arkansas State Institutes for the Blind and Deaf Mutes. Although not a "sinecure," yet it is an office of honor and responsibility.

TO SAVE THE BABIES.

THE French Government, despairing of any hope to increase the birth rate of the country, is now devoting its energies to saving those already born. The new law forbids, under a severe penalty, any one to give infants under one year any form of solid food, unless such be ordered by a written prescription, signed by a legally qualified physician.

MARRIAGE NOTICES.

DR. D. A. COMBS to Miss Alma Malone, both of San Marcos, Tex., on November 12, 1895.

Dr. Thomas Haskins Lipscomb to Miss Mary David Cheatham, both of Nashville, Tenn., on December 25, 1895.

Obituaries.

THE many professional friends of Dr. W. H. Morgan will be grieved to learn of the death of his beloved wife, Mrs. Sarah A. Morgan, which occurred at her home in this city December 23, 1895.

Dr. J. Y. Crawford sustained a sad loss in the death of his eldest son, George W., which occurred in this city December 17, 1895. He was an unusually bright and noble boy. We extend our sincere sympathy to the bereaved parents.

We were pained to learn of the death from consumption of our old friend, Dr. William Hawkins, of Rossville, Ga. He was a reputable dentist, a valued citizen, and consistent Christian. As a result, his loss will be greatly deplored by all who enjoyed his acquaintance. We extend to the bereaved family our sincere condolence.

DR. JAMES E. GARRETSON.—Died October 26, 1895, at his home, Lansdowne, Pa., James Edmund Garretson, A.M., M.D., D.D.S., in the sixty-eighth year of his age.

To those who saw and heard Dr. Garretson at Asbury Park in August last, and had not been informed of his serious illness later, the announcement of his death was a great shock. Those nearest to him knew then that he was laboring under great mental strain and nervous exhaustion, and for these reasons his stay at Asbury was shortened. The November *Cosmos* contained an extended obituary notice of him, from which we extract the following facts:

"Dr. Garretson was born in Wilmington, Del., where he studied dentistry with Dr. Thacher in 1850, began practice in Woodbury, N. J., and subsequently entered the Philadelphia College of Dental Surgery, graduating in 1856. Dr. J. Foster Flagg, his brother-in-law, was one of his classmates. He graduated in medicine in 1859 from the University of Pennsylvania. For two years he held a chair in the Philadelphia School of Anatomy, formerly filled by the late Prof. D. Hays Agnew. In 1864 gave it up to accept the chair of Anatomy and Surgery in the Philadelphia Dental College. In 1869 he was appointed oral surgeon to the hospital of the University of Pennsylvania. In 1880 he became dean of this college, which position he held at the time of his death.

"In the especial field of his activities Dr. Garretson filled a unique place. He was the pioneer in a new department of surgery, and the creator of its technique. He brought to the practice of his life work the skill and manual dexterity of the trained dentist, to which was added the broad culture and intimate knowledge of his subject required by the educated surgeon. With this educational equipment grafted upon his rich natural endowment of attractive characteristics, a combination resulted which easily accounts for his phenomenal success and wide reputation as a surgeon and as a teacher.

"Broadly speaking, Dr. Garretson may be said to be a striking example of the self-made man. His love for his work, his faith in and respect for the possibilities of development in dentistry, and his ambition to secure for it the status and recognition it deserved, have borne abundant fruit in the example of success which he has left as a heritage to his profession.

"He realized the crudity which characterized the method of performance of the earlier operations done upon the head, face, and jaws; he saw that the special training and many of the operative methods of the dentist were, with suitable modification, directly applicable to surgery within his selected territory. Grasping this great principle and putting it to thorough practical test, he soon found that he had struck the keynote to success. The whole complexion of his operations, whether viewed as to their technique or as to the character of the results, differed essentially from the work done by any of his predecessors and the majority of his contemporaries. His work was distinctly conservative in character. He kept in view the importance of the cosmetic feature of his results, and as a consequence his operations were designed and done with a distinct purpose to avoid to the utmost extent permanent mutilation. The permanent record of his surgical work is embodied in his great literary work, the "System of Oral Surgery," the sixth edition having appeared in 1895.

"Dr. Garretson's intellectual qualities were strongly characteristic. His pronounced *penchant* for philosophical and metaphysical study was one of the determining features of his life. This love for philosophical study manifested itself strongly in his writings and in his lectures to his students. He possessed wonderful insight into the profounder psychic problems of life and great facility in their interpretation and portrayal to others. His fluency as a speaker, his intense appreciation of the divinity which doth hedge a man,

his kindness and sympathetic quality often gave to his formal lectures and addresses an oratorical quality of high grade.

"Dr. Garretson was a contributor not only to the literature of his profession, but to general literature as well. The earliest of his writings, so far as we have been able to trace, are a contribution upon 'Dental Hygiene' and one upon the 'Ether Question,' published in the *Dental News Letter* in 1855. His writings consisted of a number of separate book publications, as well as of contributions to periodical literature. There have appeared in the *Dental Cosmos* more than one hundred articles from his pen, besides a large number of unsigned communications published as Hints and Queries.

"Apart from his 'System of Oral Surgery,' he has published works as follows: 'Brushland,' 'Hours with John Darby,' 'Thinking and Thinkers,' 'Odd Hours of a Physician,' 'Nineteenth Century Sense,' and 'Man and His World.' These were written under the *nom de plume* of 'John Darby.'

"Dr. Garretson possessed to a marked degree attributes of simplicity and guilelessness. He had a childlike faith in the honesty of mankind; years never taught him even the shadow of a distrust or suspicion of his fellow-man, which might have spared him much of the care and anxiety which clouded his last days.

"His remains were incinerated at the Germantown Crematory, in accordance with his wishes, and the ashes deposited in the Friends burying ground in Upper Darby."

The chair of Anatomy and Surgery in the Philadelphia Dental College, which he so ably filled, will be divided between his faithful chief assstant of Oral Surgical Clinic, Dr. M. H. Cryer, and Dr. Henry C. Boenning.

SIR JOHN TOMES.—Died July 20, 1875, at his home, Upwood Gorse, Caterham Valley, Surrey, England, Sir John Tomes, F.R.S., F.R.C.S., L.D.S., Esq., in the eighty-first year of his age.

A public benefactor belongs exclusively to no country, but to the world. In the death of Sir John Tomes not alone the dental profession of England, but that of the whole world, has sustained a loss that is not easy to estimate. A man of varied and high attainments, his influence in the building up of dentistry toward the high plane of a learned profession has made a strong impress.

It is given to but few men to shine brilliantly in several lines; but whether viewed as a practitioner, a scientific investigator, a dental legislator, or as the exponent of a higher and more liberal educational standard in dentistry, Sir John Tomes was a leader.

As a scientific investigator his writings embody the best that has been said upon the subjects within their scope. They bear the stamp of the truth-seeking scientist, in which enthusiasm in his work and love for nature's truth dominate all personal considerations. He was wedded to no pet theories upheld by observations made to suit the case, but was content to see and truthfully interpret what he observed of the phenomena of nature for the benefit and advancement of his colleagues. Had he confined his labors solely to the fields of research in dentistry, his profession would still have honored him; but it was as a professional leader, with the keen insight to grasp a great principle in the elevation of professional standards, putting it into operation for the good of his fellows, "blazing the way for future generations" of dentists, that he will be most dearly remembered by those who reap the benefit of his life work.

The editorial article in the *Journal of the British Dental Association* for August 15 sympathetically portrays some of the personal attributes which won for him the love and allegiance of those whom it was his life work to serve. The same journal contains an elaborate sketch of Sir John Tomes, and we reciprocate on behalf of the dentists of America the sentiments of the closing paragraph of the editorial in question, as follows: "We who follow him have yet to realize his absence: for the present we can but mourn the loss of a kind and generous-hearted benefactor. And in behalf of the whole body of dentists, at home and in our other homes across the Atlantic and in the Southern seas, we gather up our tribute of sorrow, and with loving veneration lay it on the grave of our departed friend, and to his loved ones left behind offer our deepest heartfelt sympathy."—*Extract from Dental Cosmos.*

SOUTHERN DENTAL ASSOCIATION.

THE twenty-seventh annual meeting of the Southern Dental Association was held in Atlanta, Ga., November 5, 6, 7, and 8, 1895. The central position of Atlanta, together with the attractions of the Cotton States and International Exposition now being held there, brought a good attendance to the meeting of the association. There were many interesting papers read and discussed, a full report of which will be given in the *Dental Cosmos*, beginning with the January number.

The election of officers for the next meeting was held Friday, November 8, the following being elected: John S. Thompson, Atlanta, Ga., President; L. P. Dotterer, Charleston, S. C., First Vice President; W. E. Walker, Bay St. Louis, Miss., Second Vice President; T. C. West, Natchez, Miss., Third Vice President; E. P. Beadles, Danville, Va., Corresponding Secretary; S. W. Foster, Atlanta, Ga., Recording Secretary.

The next annual meeting will be held the first Tuesday in November, 1896, at Nashville, Tenn.

ARTIFICIAL TEETH.

TO those dentists who have for many years used and approved the teeth bearing the stamp of H. D. Justi, it might seem unnecessary to further advertise them; but for the information of the great number of young men who are annually entering the ranks of the dental profession, we wish to call attention to a few points in which we claim a superiority for these teeth over all others.

In Form these will excel both in variety and in close imitation of nature, not only in her ordinary average styles, but also in what might be called her eccentricities of the form and arrangement.

In Color we have succeeded in most nearly securing that bony texture which is so distinct from the porcelain glitter we see in so many artificial teeth, and in the delicate blending of the shade they are eminently satisfactory.

In Strength they have the highest degree possible consistent with maintaining the other qualities required. It would be quite possible to make teeth much stronger by disregarding beauty of form, and making a coarse, thick block; but this ought to be, and doubtless would be, at once rejected by both dentist and patient.

In Adaptation to the alveolar ridge, great care has been taken to meet every requirement, and finally we ask for the product of our factory only a careful criticism and fair trial to convince the profession that we are fully justified in the superiority we claim for it.

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to the Interest of the Profession.

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Communications, original contributions intended for publication in THE HEADLIGHT, and exchanges should be directed to Dr. Henry W. Morgan, 211 North High Street; or Dr. Ambrose Morrison, 504 Church Street.

All letters relating to business, containing remittances or advertisements, should be sent to the publishers, MORRISON BROS., 307 North Summer Street, Nashville, Tenn.

Neither the editors nor publishers hold themselves responsible for the opinions, theories, or criticisms of the authors of papers appearing in this journal, or any claims of originality or novelty that may be made by them. Papers will not be published under the head of "Original Communications" that have appeared in other journals.

ATTENTION.—The constant increase of our business demanded larger and more commodious quarters, which we have obtained in our new store, 307 North Summer Street.
MORRISON BROS.

T·H·E

DENTAL HEADLIGHT.

VOL. 17.

NASHVILLE, TENN., APRIL, 1896.

No. 2.

Original Communications.

MUNICIPAL SANITARY LEGISLATION.*

BY W. M. L. COPLIN, M.D., PROFESSOR OF PATHOLOGY AND BACTERIOLOGY IN THE MEDICAL DEPARTMENT OF VANDERBILT UNIVERSITY.

THE manifold broad subject of State Medicine, covering as it does the domain of all that may be accomplished by State enactment and by authority of same, blends with the higher moral laws of the community on one side and the infinitesimal proclamations of minor health boards and authorities on the other. While State enactments may, to a certain extent, regulate many of the dangers arising in its domain, it is not possible for the broad laws which apply all over a State to be in such detail as to fit every section. By reason of this impossibility of fitting a State law to every municipality the State has issued an enabling edict, which permits the city to control health matters within her corporate limits as she does to a certain extent taxation. This executive authority—that is, the carrying out of State laws in and by the officers of the city—and the enactment and execution of laws peculiar to herself, constitute what may be termed municipal sanitary law. The width and depth of such laws supply an indication of the wisdom, and often of the wealth, of a city quite as well as do her institutions of learning. In a certain broad way it may be said that nothing is easier to inaugurate than a certain amount of sanitary law, and, with equal certainty, that nothing is more difficult than elaborate, thorough, and at the same time feasible, efficient sanitary legislation and execution.

How far the general welfare clause of the constitution permits

*A paper read before the "Old Oak" Club, of Nashville, Tenn., February 29, 1896.

sanitary laws to go can often be decided only by the most hair-splitting judicial opinion. Thus the licensing and inspection of prostitutes, a popular and no doubt much needed requirement abroad, has met with the most severe opposition in this country, and an eminent jurist is quoted as believing that no clause of the constitution authorizes what some have been pleased to call the matter in question, the licensing of individuals to commit crime. While such a measure is inserted to illustrate the close connection which may arise between sanitary law and morals, it is not proposed to consider that question in this paper. What subjects may be properly considered as a part of the domain of municipal sanitation may be polemical, and into such a discussion we cannot go, but only list as it were a few of the necessities which city law should cover and deal with some detail in what the present times consider most important.

The city law should to a certain extent limit and control the individual in the performance of such functions as those demanded by organic life, both in health and disease; just how far these can be made personal factors is one of the nice questions of the law. You can prohibit the sale of tubercular meat, but can you prohibit the eating? With regard to alcohol, you can control its sale, but there is much doubt if you can its consumption. Some States and cities have attempted the latter indirectly by punishing the consumer for showing evidence of having consumed the article, but there may be grave legal doubt as to whether the drinking of alcohol can be prohibited in those who show its evident phenomena any more than you can control the eating of raw oysters in order to suppress some of the influences which they are said to induce. This inability to directly control the individual is met by controlling the means. Rather than punish the child for doing wrong, it is held as best to keep the means for wrongdoing out of reach. This led to the blue laws of our ancestors, who prescribed a definite number of hours in the stocks to those who sold or supplied certain articles on the Sabbath. While both means undoubtedly attain largely the same end, it is manifest that the laws which protect the unit by protecting the whole avail more than the laws which govern the whole by proscribing the unit. While as just indicated, a city may see many demands for directing its citizen, the most manifest duty lies in studying and directing for the general good those conditions which result from the aggregation of humanity. Thus no demand arises in the country

for any process analogous to our ever much-needed and always much-neglected street cleaning; country water supply and food origin does not demand the conservation in purity which the city's does. While the latter is true to a large extent, it is found that the State has had to extend to the country laws enacted by a corporation; as an example of this we have the State of Massachusetts regulating the purity of its herds, whether for the production of milk for city or country consumption.

It may be said that the three conditions which are now and will long continue the greatest source for municipal regulation are the food, the direct and indirect products of food, garbage and sewage, and the control of industries within the corporate limits. The engrossing questions of municipal sanitation which absorbed the energies of our ancestors have been elucidated by the steady progress of the infant science of bacteriology. The widespread epidemics of half a century ago are no longer possible, and attention now must turn to another class of equally threatening forms of disease, whose insidious lodgment in our midst garners, more slowly but none the less surely, a most fearful harvest. For the old epidemic of cholera substitute the modern endemic, consumption; for the feared typhus fever, the unassuming typhoid. The epidemic diseases came like the cyclone on the ripening fruit and grain, sweeping before it the often perfected fruit; the modern epidemic picks here and there like a rot on the tree, never cleaning the branches, but year after year reaping a harvest far in excess of the epidemic's most dreaded ravages. Communities have been slow to perceive this. The one grain of corn carried after another was not missed, and it was only when heaped statistics began to contrast the two forms of disease that we realized its significance. As illustrating the prevalence of modern endemic diseases, few are aware that in our large cities (Philadelphia, for example) for every death due to smallpox in the last ten years, there have been over two hundred deaths due to consumption, and forty-seven due to typhoid fever. This alarming condition demands the closest study by the sanitarian, and for the present absorbs all interest previously centered on the epidemic diseases. One can safely prognosticate that the time is near, if not already at hand, when the epidemic diseases will be largely matters of history. This throttling of epidemics has led to a closer study of the endemic diseases, and to the methods for their prevention. The constant association of one or more of the three conditions mentioned with this class of diseases has led to a careful study of

the three elements as disease producers. Let us consider in the reverse order the subjects named:

1. *Industrial Hygiene*.—The prevalence of consumption in one form in those occupied in labor which caused crowding and the inhalation of dust, and the demonstration that in the dust lay the cause, has given the names "miner's consumption," "glass grinder's consumption," "nailer's consumption," and we might, although not belonging here, say the "milk drinker's consumption" and the "water drinker's typhoid fever." Modern science, having demonstrated the cause, has now only to seek for the carrier to exclude the disease. Hence the demonstration that in many of the industries the inhalation of consumption bacilli is most abundantly assured in those industries accompanied by crowding, the inevitable, or rather ubiquitous, consumptive being in the crowd to assure the infectious agent in his sputum. This on the floor, ground with other dirt and then inhaled, led to the positive *data* that, once engaged in such an industry, death comes in the shape of consumption sure in most cases. Statistics demonstrated this long before the laymen saw it, and, therefore, when sanitary supervision led to the passage of the first acts, directing the proper ventilation of buildings and the needed measures for prevention of disease, the laborer rose in his dignity, and protested with a vehemence which shook the throne, and led to the withdrawal of the obnoxious law, which nearly a half century later was reenacted by the request of organized labor, but too late to save thousands who perished in the forty-three years when ignorance's demands had silenced the rights of intelligence to direct. Every industry demands supervision and control. Education should extend to the work room, and not cease with the portal of the school. The modern sanitarian must seek in this to direct needed reforms in many of the industries which to-day offer such an alarming source of disease.

2. The *garbage* and *sewage* questions are both scientifically settled, but many of the practical details must be worked out. The extraction and incineration methods for handling garbage have definitely settled that question, but sewage still offers opportunities for scientific inquiry. It is settled, however, that, instead of the present system of continuously converting our water ways, rivers, and lakes into sewers, we must find some way for disposing of sewage. Incineration is ideal, but I can hardly say that at present it is feasible, being too expensive. Farming sewage is eminently successful on the continent of Europe, and with our abundance of land seems

at present to offer the best solution of the trouble. While the practical details of all this are being worked out, it would seem wise that all municipalities conduct future operations, with the purpose of sooner or later giving up the disastrous policy of pouring their sewage into streams. State and national legislation will in time do for us what the "River's Pollution" bill has done for Great Britain, and we must face the matter at once, and prepare for a State or national order prohibiting the poisoning of our streams by the enormous admixture of human excrement, and the distribution of bacteria and their poisons by pouring the highly infectious element directly in the course of distribution to others. Whether precipitation, filtration, farming, incineration, or electric disruption, offers the best means for bridging the difficulty, it may be best at present not to say, but certainly the present means must be abandoned.

3. *Food.*—If we consider water a food, it may be said that the diseases proving most fatal of all to man are those finding a highly favorable point of ingress in his food. As just intimated, the enormous pollution of streams by sewage renders the water that we take in not infrequently the most dangerous product that we habitually consume.

The growth of cities, and the more thickly settling of country districts is rapidly assuring a most thorough infection of water supplies. The dangers increasing year after year must awaken cities to the necessity of guarding against the many diseases due to the drinking of impure water. President Brown's series of lectures on the dangers of water pollution probably contain a summary of our knowledge upon the subject, as brought up to date. The witty saying of Dr. Kedzie, that the water supply of cities demands one of two things, "innocence or repentance," contains much truth. Where the former can be gotten it is probably the better. I say "probably;" the proof of continued innocence is as difficult to keep in evidence in water as in morals, and, therefore, continuous repentance offers quite as much as may be desired. The three alternatives which Dr. Brown presents to Philadelphia are: (1) To abandon the present supply, and get a better one; (2) to remove the sources of pollution; (3) to purify the water by filtration. Dr. Brown is of the opinion that the so-called purification of water by aeration is exploded, and that the natural sources of purification are restricted to natural filtration. Should a city abandon an imperfect supply, there is no reason for assuring the continuous purity of any

newly selected source. Therefore, the best alternative is purification, and the best form of purification is filtration. The consensus of opinion at present is that sand filtration offers the best results. Looking to this in Nashville, there can be no doubt but that water filtration would greatly reduce the death rate here, as in any other city. As an example of the great benefit arising from pure water, one instance suffices: In 1859 the city of Glasgow substituted Loch Katrine water for Clyde water, and the death rate from diarrheal diseases fell to less than one-half of the previous mortality. The filtration at Lawrence, Mass., has reduced the typhoid death rate from 12 per thousand to 1.2 per thousand. Besides this, filters stand guard before epidemics due to infected water. The best illustration which we have of this was during the recent cholera epidemic in Hamburg. Altona and Hamburg have practically the same supply, except that Altona receives her water intake lower in the course of the stream, and thereby gets some of the sewage of Hamburg. Altona filters this befouled water through sand. Hamburg used unfiltered water. While Hamburg was in the throes of one of the most terrific cholera epidemics known to modern cities, and pouring tons of infected sewage directly into Altona's supply, the latter city escaped an epidemic, except a few cases which were shown to have used unfiltered water. At the same time it was shown that the filters were arresting the bacteria, and were therefore themselves infected, although purifying the output.

Municipalities must sooner or later place between the water supply and the consumer the protection afforded by a properly constructed filter. The tardiness with which American cities have adopted filtration has been due to two things: First, the beneficent supplies from large areas; and secondly, the tardiness with which the modern politician accepts what he does not understand, and the inability of any filter to abstract from the mental sludge the microbiologic dregs which permeate much of his alleged information; and when we add to this the necessity for intelligent supervision which every filter demands, it offers so little in places forward workers as to really extend so little encouragement for enthusiasm in the politicians of great cities that Lawrence, Mass., with a population of 51,000, has filtration, while the millions of New York and Philadelphia, particularly the latter, are using the more or less sophisticated sewage afforded by victorious political parties. There may be a beneficent dispensation of Providence in this which many of us fail to grasp. Sand filtration is not an experi-

ment, but has been in use in England and Germany for half a century. The expense of such a filter is not great. The Lawrence filter cost a trifle over \$20,000 per acre, and costs less than \$2,000 per acre to maintain. It delivers between two million and four million gallons of water per acre daily. Dr. Brown seems inclined to believe that over three million gallons *per diem* can be safely and surely delivered for each acre of filter surface. Nashville pumps into the reservoir thirteen million gallons of water each day. This could be filtered at an additional cost of an initial expenditure of less than \$100,000 and about \$6,000 per annum for maintenance. All mechanical filters are of questionable utility. By mechanical filters one means those in which process filtration is conducted or accomplished by machines. The temptation to hasten the process is too great for the ordinary filter attendant.

As an illustration of the growing need of filtration the following may be adduced: In July, 1890, Schenectady, N. Y., had three hundred cases of typhoid fever, with twenty deaths. In October of the same year Cohoes, lower on the Mohawk River, had one thousand cases. In West Troy, on the Hudson, below the mouth of the Mohawk, the epidemic began in November, and in December reached Albany. Eighteen hundred cases had been reported. All but twenty-six of these were the constant consumers of the sewage-contaminated water. Between Schenectady on the Mohawk and Albany on the Hudson but twenty-six miles intervene.

While food inspection of all kinds is a growing demand, and cities are meeting this by meat and market inspectors, backed by detailed laws, there is no field in which a greater demand exists than in the milk supply of a large city. Nashville is at present in the throes of a milk bill, and the dairy interests are in arms at this threatened supervision of private interests. The better class of dairymen, as a rule, are in favor of the bill, as it offers a premium to cleanliness and pure herds. The owner of the slop-fed, shed-housed, scrub cow and the operator of the swamp can-washer dairy bristle at the thought of such a bill becoming a law, and present as many sharp points as the traditional porcupine. Any milk legislation which does not begin at the cow, or, as reported in a recent article, behind the cow—that is, with her habits and environments, and the food supplied her—does not cut the tail off the dog close enough to prevent his killing sheep. In milk there is not the opportunity for repentance which water affords, and the demand for its innocence is therefore more imperative. Milk, being a food most habitually

consumed raw, offers dangers not present in, or at least overcome by, cooked meats and other animal foods. The dangers arising from milk are twofold—first, it may be pure from the cow, and become the carrier of infection; secondly, it may come from the cow an infected product. Any milk bill which does not include these two sources of danger can but half protect the consumer. As an illustration of the danger which may arise permit me to insert an instance where disease was propagated by the handling of milk, making it the carrier of disease:

TYPHOID FEVER.

Dr. Sidney Davis reports the following (*British Medical Journal*, December 21, 1895, p. 1561): In Plumstead there occurred 177 cases of typhoid fever, 159 of which were consumers of milk from a single dairy. The preceding yearly number of cases in Plumstead had been 22, 29, and 26 cases for the three years previous to 1895, and up to May, 1895, 6 cases had been reported. In one week preceding May 15 there was reported 25 cases, 24 of which occurred in consumers of milk from one dairy. A visit to the dairy showed it to be in a bad condition, the sheds dirty, and the business conducted in a slovenly manner. There was a filthy brick tank used for watering the cows, and probably for washing the containers in which the milk was shipped. The health authorities stopped the sale by order. The man evaded the order until in June, when he was arrested and his business closed. In the meantime 152 cases, in addition to the 25 already reported, were recorded, making 177 in all. In the 177 cases 159, or over 90 per cent, used the milk in question. The epidemic ceased with the suppression of sale of the milk. The deaths for previous years had averaged five per year, but in the two months' epidemic twenty-three lives had been sacrificed.

In April, 1895, a season when typhoid is not prevalent, and when the sanitary condition of the town seemed to be particularly good, the physicians of Sanford, Conn., noticed an unusual prevalence of typhoid fever. The monthly number of cases of typhoid rarely exceeds 10, but in the week ending April 22, 72 cases were reported, and the following week 78 cases. This continued up to July 15, when 406 cases had occurred. Such an extraordinary condition could not but alarm the authorities, and search was inaugurated for the cause. It was noted that an unusual number of children were affected, 140 in all, and as the disease is rare in children, the cause

was assumed to lie in some food particularly adapted for their consumption. The milk supply was looked into, and it was found that 368 of the patients (95.3 per cent) consumed the milk of one dealer. Further search showed that he owned no cows, but secured his supplies from three dairymen, all of whose dairies were above suspicion. Still further search showed that he washed his cans in water from a well thirteen feet deep, and full to within one foot and nine inches of the top. The surroundings were dirty, consisting of a dirty stable and wash tank and many privies near by, one in particular in an extremely offensive condition, twenty-five feet from the well and on slightly higher ground. In these surroundings the milk cans were washed and stored, and from here they were taken to clean dairies to be filled. How the infection reached the well has not been positively known, although it is believed that some sick Italians working on a near-by railroad probably infected it. The epidemic caused only 27 deaths, a remarkably low mortality; but the town spent \$5,000 for nursing, food, disinfectants, etc., and that it lost vastly in a commercial way there can be no doubt. In three months there were 406 cases; the monthly average since the epidemic is under 10, or say 100 cases each year. Sanitary care of the town ought to have saved all those cases, the deaths and the stigma.

There is one more epidemic of typhoid so clearly traceable to milk that we beg to present it. Bayhead, Ocean County, N. J., is a modest watering place, with a summer population of about 1,000. About June 15, 1895, Ford J—— brought to Bayhead ten cows, for which he secured pasture, stabling, and dairy facilities in the vicinity. He was not well when he came to Bayhead, but continued to carry on his work until July 11, nearly one month. A doctor was called in, and the case was pronounced typhoid fever. Ford J—— did not retail any milk, but sold direct to a Mr. C., who sold it in the town of Bayhead. Early in July typhoid fever began to develop in the town, and soon fifteen cases had been reported. A careful sanitary inspection of the infected houses failed to reveal a sufficient cause, and the fact that all the afflicted individuals were consumers of the milk supplied by Ford J—— could but establish the source of the disease. The water supply at Bayhead is by two artesian wells, one 700 and the other 900 feet deep. These, of course, could not be the source of the disease, besides the prompt cessation of the epidemic after the milk in question had been withdrawn from the market added confirmatory evidence, if such were needed.

While numerous epidemics have been shown to be due to milk infected by careless handling or criminal intentional adulteration, the above are believed to cover sufficiently fully any needed proof of the dangers arising from a milk supply not fully under official observation and control. The last-named epidemic was immediately met by the State of New Jersey by the enactment authorizing the health powers to "prohibit the transportation or sale of any milk which may be produced, kept, or found upon premises infected by such disease." Cities throughout the world are making every effort to prevent such wholesale distribution of disease as occurs through what is titled "milk epidemics" similar to those cited. Abundant evidence has accumulated to show that not only typhoid fever, but scarlet fever, diphtheria, and allied diseases are similarly disseminated. Many scarlet fever epidemics and diphtheria outbreaks have been positively proven to have arisen through an infected milk supply. So frequently is diphtheria associated with suspicious milk that many observers have been led to believe that the cow has the disease, but Prof. Osler states: "In the epidemics in which the contagion has been traced to the milk it is more probable that the virus has been mixed with it than that the cows themselves are diseased."

The second class of diseases which milk can transmit are those diseases which the cow may have in some form, and in her milk communicate it to man.

TUBERCULOSIS.

As a type of disease which milk may transmit direct from the cow to man, let us take the scourge of all time: tuberculosis, or consumption. The well-known character of the disease, its wide distribution and alarming mortality, will enable all to grasp the significance of its possible transmission to man. The general public are aware of the well-established proof that consumption in all its varied forms is due to a germ, and that no case of consumption can arise except through the introduction of this organism. Now that it has been established, beyond the remotest possibility of a doubt, that consumption in animals is due to the same causes as consumption in man, we have only to establish evidence that the germ may reach the milk, and through the milk, man. First, however, let us see if the milch cow is often the subject of consumption. A careful examination of a herd of 185 milch cows owned by the Norristown Insane Asylum led to the detection of consumption in 135. This number was slaughtered and the correctness of diagnosis, made

during life, demonstrated by careful *post-mortem* examination. Prof. H. D. Gill (New York Academy of Medicine, section on Public Health, November 8, 1895) states that in the vicinity of New York City some herds are affected with tuberculosis to the extent of 60 per cent. Prof. Gill goes on to say, "It can be transmitted from animal to animal, from animal to man, and from man to animal," and lays great stress upon the dangers arising from milk, the product of tubercular cows. Prof. Leonard Pearson, of the University of Pennsylvania, states that 30 per cent of all cattle slaughtered are tubercular—that is to say, consumptive. Abundance of evidence has accumulated to show that from 15 to 26 per cent of all dairy cows in the East are infected by tuberculosis in some form. This is due to inbreeding, and can be prevented by proper breeding, the purification of the herd, and the proper care of the stables and food.

Having thus considered the widespread prevalence of tuberculosis in herds, does the milk of such herds contain the germ of consumption? The State of Massachusetts has officially answered this through the work done by Dr. Harold C. Ernst, of the Harvard Medical School. Dr. Ernst divides the milk from cows having consumption into two kinds: First, that from the cow having no tuberculosis of the udder; and secondly, from cows having tubercular udders. Having demonstrated that the cow was tubercular, and that the udder was free from any disease, he examined the milk, and found the germ of consumption in it. What is still more conclusive, he fed the milk of such cows to twelve pigs, five of which died of consumption. In the second group of cases, cows with tuberculosis of the udder, the milk contained the germs of consumption constantly, and produced consumption with great promptness when fed to susceptible animals. The recent report of the Royal Commission, appointed by England for the express purpose of studying consumption, is also strikingly confirmatory of the dangers shown by Dr. Ernst. Pigs, guinea pigs, and rabbits were fed on tubercular meat and milk, and an alarming percentage of the animals experimented on developed consumption. Milk containing the germ of consumption as it came from the cow was fed to fifteen animals, all of which developed consumption. Thirteen animals were inoculated with such milk, and all died. Not only this, but butter and buttermilk that was the product of tubercular cows, as above, produced consumption. The report of the Royal Commission on Tuberculosis does not indicate that a consumptive cow is liable to disseminate

tuberculosis through her milk except there be disease of the udder. There is, however, such a decided disposition toward the rapid and general distribution of tuberculosis in cows that, even if the udder is free, no one can form the remotest conception as to how soon or how severe the outbreak may be. In other words, a cow with any form of consumption in her may, without warning, and, it may be, without any palpable evidence, rapidly develop tuberculosis of the udder and become an absolute peril to the consumer of her milk before detectable disease of the udder occurs. Again, such a disease may be overlooked. With these points in view, the commission, in accord with all authorities on the subject, believes that no cow having consumption in any form should be allowed to remain in a herd. The danger is too great. That milk from cows with consumption contains the germs of that disease has been demonstrated by other observers than those quoted, important and conclusive evidence having been recorded by Bang, Bollinger, Gerlech, Hirchberger, and numerous other observers.

We feel that the above answers the question as to the presence of germs of consumption in milk, and also the possibility of milk conveying the disease to animals. That man is less susceptible than the animals cited is, of course, improbable. In the light of the above it seems hardly worth our while to consider what must be the result of man using such milk for food. In an article on "The Prophylaxis of Tuberculosis" (*New York Medical Journal*, January 11, 1896) Dr. Ambler asks: "Is it not possible, considering the large number of tubercular cows in the country, that our infants have the germ introduced by their milk? That these germs find lodgment in the lymphatic glands of the child, remaining quiescent for years, until the time of puberty, or later? How else can you account for glandular swelling in a child seemingly healthy? And how many bottle-fed babies or children fed upon cow's milk do you meet that do not sometime during their early years have enlarged lymphatics?"

Milch cows are unknown in China, and probably this accounts for the infrequency of consumption. Prof. Osler says: "The great frequency of intestinal tuberculosis (or consumption of the bowels) and mesenteric tuberculosis in children no doubt finds here its explanation."

The gist of all this is that consumption of cows is the same as consumption of man; that much of the disease in the baby, child, or adult is directly traceable to our milk; that it is to a large extent

preventable; that we owe it to ourselves, the helpless child, and to future generations to begin at once every effort to protect humanity.

TO REMOVE THE DANGER.

The most important point is: Can all this be avoided? Certainly. There can be no doubt that proper laws can fully remove many of the dangers, and all of them if the laws be courageously carried out. Cities interested naturally are desirous of knowing the probable cost, which, at first glance, must look as though it must be great. Such, however, is not the case, as abundant evidence shows that the existing officers of any great city can fully perform the duties exacted by the proper law, if the city possess a veterinarian. A previous part of this article clearly establishes the need for securing a pure milk to start with; pure herds to produce such milk. The inspecting, testing, and registering has cost, in New York, on an average, 47 cents for each animal. In this work 20,310 cattle were inspected, and 687 were killed because they had consumption. A city need not organize slaughter of infected animals, but only their removal from herds supplying milk and the disinfection of all stables, etc. Much of this should be paid for by the owner, as he is thereby assured of the soundness of his herd, and the safety of preserving it intact. When he does not know which animal is tubercular he may have one cow infecting all, and thus eventually reach what has not infrequently been observed, a 60 per cent consumptive herd. The initial expense is greater than the cost of maintenance, for, once it is established, each dairyman will see that every cow purchased is sound before he adds her to his herd. Registered cows will be far more valuable than those not certified to be free from disease.

As to frequent inspection of dairies it is not necessary to have a special and constantly traveling corps of inspectors. Once the water supply is above suspicion, the dairies clean, and the facilities sufficient, every milkman will fear the unexpected visit of the inspector, and be constantly prepared to receive the uncertain visitor. Besides this, it is more through ignorance of danger and carelessness than anything else that milk becomes infected after it leaves the cow, and the added effort at cleanliness will repay every dairyman in the sweetness and keeping qualities of his milk. The law is clearly one for education, and does not demand that an inspector should be at every milking place any more than the criminal law implies the necessity of a policeman at every

hamlet to prevent theft and murder. The sanitary code has always been a law which protected those whom it regulated, and commercialism has always admitted its justice, once it was understood. And, added to the protection of man secured by a wise milk law, the improvement of herds offers one of the greatest adjuvants to obtaining a productive stock industry. The laws of the great Eastern States and cities are becoming so stringent that diseased cattle cannot be shipped into their midst, and the market is therefore restricted to unprotected localities where, of necessity, the profits of the raiser and dealer must be less as the oversupply becomes more pressing.

In conclusion, it was claimed that no matter what the good qualities of any bill might be, if it did not regulate the condition of dairies as to cleanliness and of herds as to healthfulness, it would not half cover what was needed to protect the consumer. Any bill which meets the requirements given will be supported by all dairy-men who preserve the health of their herds and the purity of their dairies and products. For the same reasons it will be opposed by those who fear that disease has already invaded their herds.

Time does not permit my considering many details in municipal sanitary law which progressive science is prepared to demonstrate as needed and possible. Thus the prevention of the spread of consumption from the unfortunate human victim, the certification of all school-teachers as free from consumption, a recent law in Minnesota, and many other of the more urgently demanded hygienic measures, must for the present be left to future consideration.

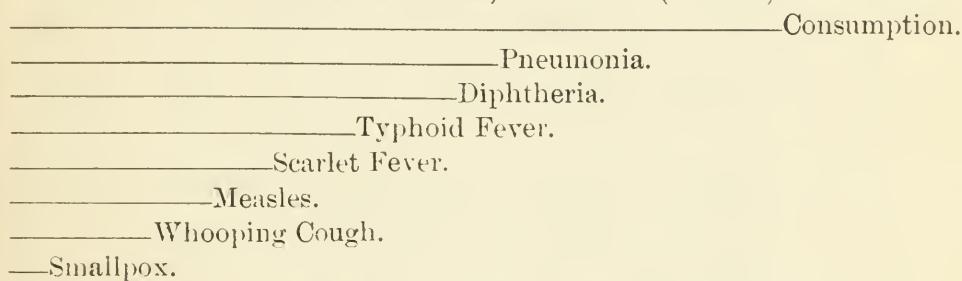
Selections.

DANGEROUS COMMUNICABLE DISEASES: HOW SPREAD, HOW RESTRICTED AND PREVENTED.*

In Michigan the most dangerous communicable diseases, named in the order of their importance as causes of death, are consumption, pneumonia, influenza,† diphtheria, typhoid fever, scarlet fever, measles, whooping cough, and smallpox.

The relative importance of these diseases is shown by the diagram below. Consumption causes many more deaths than does any other disease.

DEATHS IN MICHIGAN, TEN YEARS (1884-93).



PRINCIPAL MODES BY WHICH THEY ARE SPREAD.

Most of the so-called "contagious" diseases are usually spread by means of atmospheric dust, of which the germs of these diseases sometimes constitute a part. Consumption, diphtheria, pneumonia, influenza, scarlet fever, measles, whooping cough, and smallpox are usually spread in this manner. Probably these diseases are not usually caught or contracted except through some break in the skin or in the mucous membrane lining some cavity. Such breaks or ulcerations occur not infrequently in the throat at those seasons

* Data and statements supplied to school superintendents and teachers by the Michigan State Board of Health, in compliance with Act No. 146, Laws of 1895. Section 1 of this act requires "That there shall be taught in every year in every public school in Michigan the principal modes by which each of the dangerous communicable diseases is spread, and the best methods for the restriction and prevention of each such disease. The State Board of Health shall annually send to the public school superintendents and teachers throughout this State printed data and statements which shall enable them to comply with this act. School Boards are hereby required to direct such superintendents and teachers to give oral and blackboard instruction, using the data and statements supplied by the State Board of Health." (Section 2 provides penalties for noncompliance.)

† Up to the year 1889 influenza caused few deaths in Michigan; but in 1890, 1891, and 1892 the deaths reported from it averaged over one thousand a year.

of the year when the atmosphere is what is known as "raw"—that is, when it contains the throat irritant, ozone, and when it is irritating by reason of its drying effect in cold, windy weather. These diseases are apparently usually contracted by taking in the germs with the breath, through the mouth, and probably sometimes through the nose. The nose is so constructed, and so guarded by minute hairs, kept moist by the exhaled breath and by secretions, that very little dust of any kind is permitted to pass beyond the nose, so long as that organ is in its normal condition; but so much dust-laden air passes through the nose that much dust is there collected. Generally such dust contains many species of bacteria, spores, and germs, some of which are capable of causing a specific disease. For instance, the microörganisms (*pus coccii*) which cause suppuration (the formation of pus) are so generally present that any break in the skin or mucous membrane is usually followed by the formation of pus. The germs of pneumonia are quite generally distributed, so that they are sometimes found present in the noses and mouths of persons not yet suffering from pneumonia.

Because of these facts, handkerchiefs once used are very liable to spread disease, in case secretion from the nose has dried on them so that it may be detached and form dust that may be taken in with the breath or enter any break in the skin.

Some of the chief sources of danger of contracting diseases are:

1. Dust from infected handkerchiefs. (A general rule applicable to all persons, sick or well, is that handkerchiefs should be looked upon with suspicion. They should not be used after any secretion from the nose has been permitted to dry upon them. After being used, they should be put into a paper bag which may then have its top twisted shut, there to remain until put into boiling water.)
2. Dust from floors or articles upon which infected sputum or saliva has been ejected.
3. Contact with the hands of persons who cough into their hands, or who handle infected handkerchiefs or cloths into which they have spit.
4. Books, pencils, gum, drinking cups, etc., used in common.
5. Dust from rooms or clothing infected by persons having a communicable disease.
6. Possibly typhoid fever may be spread by means of dust containing the germs of that disease; but in order that typhoid fever may occur the germs must be swallowed, or find their way to the lower part of the small intestine. This disease is usually spread by

drinking water which has been contaminated with sewage or with leachings from privies. Similar statements are true relative to cholera.

THE BEST METHODS FOR THEIR RESTRICTION AND PREVENTION.

Consumption is now known to be a communicable disease. It is spread by the dust of dried sputa, and also by the milk and meat of tuberculous animals. The most important measure for the restriction of consumption is the disinfection or destruction of all sputa of every consumptive person. It is best that all persons who have a cough should carry small pieces of cloth (each just large enough to properly receive one sputum) and paraffined paper, envelopes, or wrappers in which the cloth, as soon as once used, may be put and securely inclosed, and, with its envelope, burned on the first opportunity.

Pneumonia is spread by a germ which is in the sputum of those who have the disease (and of some who do not have the disease, unless, possibly, after exposure to the inhalation of cold air). Care should always be taken to destroy or disinfect all sputa of those who have pneumonia.

Influenza is now believed to be spread by a germ which finds its way from infected handkerchiefs and other articles and places into the nose, throat, and air passages of persons susceptible to this disease. The measures for its restriction are therefore obvious: isolation and disinfection.

Diphtheria is spread by the sputa, saliva, and whatever comes from the throat and mouth of the patient, and by the dust which results from the drying of such saliva, etc. The germs of diphtheria sometimes remain in the throat weeks after apparent complete recovery. For its restriction and prevention, isolation and disinfection are the important measures—isolation of every infected person and thing, and their complete disinfection.

Typhoid Fever.—Unlike typhus fever, typhoid fever is not often contracted directly from the sick person, but usually from the discharges from the bowels of the sick person. These should always be properly disinfected. Undisinfected discharges, if dried and formed into dust, may spread the disease through the air. The chief source of danger, however, is believed to be drinking water contaminated by sewage or leachings from privies, etc. The germs of typhoid fever are killed by boiling. All suspected water should be boiled.

Scarlet Fever.—The germ of scarlet fever is not yet identified, but that there is a germ seems to be proved by the well-known communicability of the disease from person to person. It is spread by the discharges from the nose, mouth, and throat, and probably also by the minute scales which are thrown off from the surfaces of the body. Isolation and disinfection are the measures by which this disease is restricted.

Measles is spread from person to person, directly and indirectly. Isolation and disinfection should be enforced.

Whooping Cough is a communicable disease, which, in Michigan, causes more deaths than does smallpox. Whooping cough is spread from person to person, directly and probably indirectly. Most of the following "general directions," except perhaps those for disinfection of the discharges from the kidneys and bowels, are applicable for its restriction.

Smallpox.—Smallpox is a contagious disease; it spreads by means of particles given off from the surface of the body. The following rules are applicable for the *restriction* of smallpox whenever the disease occurs, but by vaccination and revaccination smallpox may be, and should be, almost wholly *prevented*. One vaccination, or once having smallpox, does not protect for life. Revaccination should be had once in about five years, also whenever smallpox is prevalent, and certainly immediately after one has been exposed to the disease.

Cholera is spread in much the same way as is typhoid fever. The same precautions recommended to prevent the spreading of typhoid fever should be taken as soon as cholera appears. The first evacuations of choleraic diarrhea are infectious, and should, as well as all that follow, be immediately carefully disinfected. Suspected drinking water should be boiled.

GENERAL DIRECTIONS FOR THE PREVENTION AND RESTRICTION OF SCARLET FEVER, DIPHTHERIA, SMALLPOX, AND TYPHUS FEVER.

1. To avoid contagium or special cause of the disease:

Isolation and disinfection are the important measures. Unless you are needed to care for the sick, or are protected by having recently had the disease, or, in case of smallpox, by thorough vaccination, do not go near the sick person. Do not allow your lips to touch any food, cup, or spoon, or anything else that the sick person has touched, or that has been in the sick room. Do not wipe your face or hands with any cloth that has been near the sick person.

Do not wear any clothing that the sick person has worn during, just before, or just after his sickness. Keep your hands free from discharges from the body or skin of the sick person. Do not touch him with sore or scratched hands. Avoid inhaling, or in any way receiving into the mouth or nose, the branny scales that fall or peel from one recovering from, or apparently wholly recovered from, scarlet fever; also any dust from the dried saliva of a person sick with or recovering from scarlet fever or diphtheria. The germs of diphtheria sometimes remain in the throat weeks after apparent complete recovery.

2. To restrict the contagium or special cause of the disease:

Isolate the sick. Separate those sick with any of these diseases, even if they are but mildly sick, from all persons except necessary attendants. A person sick with any of these diseases should not be permitted to suffer for want of care, food, or comfort; but all his wants should be attended to by adults, or by those who are protected by proper vaccination or by having had the disease. Children and those who are not thus protected should be kept away from these diseases. Do not go from a sick room to a child or other unprotected person until after change of clothing and thorough washing of hands, face, hair, and beard.* Always wash the hands thoroughly after any handling of the sick person, or anything that has been in contact with the sick person. Keep those who have been exposed to any of these diseases away from schools, churches, and other assemblies, and from all children, until it is known whether they are infected; and if they are found to be infected, isolate them until after complete recovery and thorough disinfection.

3. To destroy the contagium or special cause of the disease:

(a) Thoroughly disinfect or destroy whatever is removed from the person sick or from the sick room. All discharges from the lungs, nose, throat, and mouth should be burned or disinfected. All other discharges from the patient should be received into vessels containing a strong solution of chlorinated lime (not less than one ounce to each discharge from the bowels), and then, in cities, thrown into the water-closet; elsewhere they should be buried at least one hundred feet distant from any well; or, where this is impracticable, they may be received on old cloths, which should immediately be burned or disinfected and buried.

*Corrosive sublimate, 1 part to 1,000 parts of cologne or water, is sometimes used by physicians for this purpose. This solution should be labeled "Poison."

(b) Thoroughly disinfect the sick room and its contents after removal of the sick person, whether by death or recovery. Disinfect as follows: Burn whatever has been in contact with the sick person, and is not too valuable to burn. Garments, sheets, blankets, etc., such as will not be injured thereby, should be boiled for half an hour. After the death or recovery of the patient, subject the room and *all its contents* to the fumes of burning sulphur. Before fumigating, hang up and loosely spread out clothing, bedding, etc., or spread them loosely over chairs, leaving the bedstead, other furniture, and everything in the room. Close all openings in the room very tightly. For a room ten feet square place three pounds of sulphur in an iron pot or pan that will not leak, supported on bricks over water in a tub. Set the sulphur on fire with live coals, or with a spoonful of alcohol lighted by a match. Be careful not to breathe the sulphurous fumes. Leave the room tightly closed for several hours, then air it thoroughly. For a large room use a proportionately larger quantity of sulphur, at the rate of three pounds for each thousand cubic feet of air space, and burn as much as possible of the sulphur used.

4. Keep your premises and everything connected therewith clean; but remember that *the contagium of these diseases may attach to the cleanest article* of clothing, food, drink, book, or paper, if it is exposed thereto.

5. The law requires householders and physicians to notify the local health officer of the first case and of every case of one of these diseases. The penalty for the violation of this law may be as much as one hundred dollars. Plain and distinct notices should be placed on the house or premises in which there is a person sick with one of these diseases.

Unless the local Board of Health orders otherwise, whoever violates the orders of the health officer is liable to a fine, and to imprisonment if the fine is not paid.

More complete statements of the means of restricting and preventing these diseases are in the pamphlets issued by the State Board of Health, on the "Restriction and Prevention of Scarlet Fever," the "Restriction and Prevention of Diphtheria," the "Restriction and Prevention of Measles," the "Restriction and Prevention of Smallpox," the "Restriction and Prevention of Consumption," and the "Prevention of Typhoid Fever," any of which may be had by addressing the Secretary of the State Board of Health, Lansing, Mich.—*Dietetic and Hygienic Gazette, 1895, from Pediatrics.*

NEURALGIA.*

BY H. W. TURNER.

Mr. President and Gentlemen: It will be my endeavor to bring before you the more important causes of neuralgia, with its symptoms and treatment, and then to dwell for a short time on that special branch of neuralgia which is of especial interest to us as dental students—namely, neuralgia of the fifth cranial nerve, or trifacial neuralgia.

The first question that confronts us, in dealing with this subject, is: What is neuralgia? In it pain is the most important and prominent symptom. Some say that it is a disease in itself; others, that it is only the symptom of some other disease. Some say that lesions of the nerve trunk occur; but from investigations that have been made there have been found in the neurilemma, medulla, and axis cylinder of the nerve granular deposits, but in only a very few cases have there been found any central lesions. Neuralgia may be defined as a disease of the nervous system, in which pain is the prominent symptom, which follows in the course of nerve trunks and ramifies in their terminal branches.

There are many varieties of neuralgia, and they may be divided into two main groups: (a) Superficial; (b) visceral. To take the first group—the superficial—it may be subdivided into: (a) Trifacial (of which I will deal shortly); (b) cervico occipital; (c) cervico brachial; (d) intercostal; (e) obturator; (f) erural; (g) lumbo abdominal; (h) femoro popliteal or sciatica. The cervico occipital and cervico brachial varieties are of interest to us, as they are sometimes the seats of neuralgia due to certain morbid conditions of the teeth. In the cervico occipital neuralgia the nerves affected are the posterior branches of the first four pairs of spinal nerves, and of these the nerve most affected is the great occipital, the internal branch of the posterior division of the second cervical nerve, which supplies the integument of the back of the scalp and as far forward as the vertex. In cervico brachial neuralgia the nerves affected are the posterior branches of the four lower cervical nerves and the brachial plexus, causing pain in the shoulder, neck, and arm, following down in the course of one or more nerve trunks.

The chief visceral varieties are: (a) Cardiac; (b) uterine and ovarian; (c) gastric; (d) neuralgia of kidneys, urethra, and rectum..

*A paper read before the Students' Society of the Dental Hospital of London.

As to the symptoms, at first there is generally numbness and cutaneous anaesthesia, followed by intermittent pain, which increases in severity and is of a darting, boring, gnawing character, increasing in frequency as the attack increases in length. This is then followed by complete loss of the pain, but generally to be followed sooner or later by another attack. When the pain is most severe it may radiate to other nerves with which it is connected, and so increase the area of suffering.

Very frequently in bad cases certain definite and exceedingly painful points may be found, and these always correspond with the points of emergence of a nerve from a bony groove, or of a nerve branch becoming subcutaneous, or of a nerve passing through some muscular aponeurosis. Vasomotor disturbances are frequent, such as pallor or intense redness. In cases when a nerve supplying a gland is affected increased secretion follows. Loss of sensation in the skin over parts affected often follows, though at first it is sensitive to touch.

Neuralgia may be diagnosed by its typical sharp, shooting, boring pain of an intermittent character, which follows in the course of a nerve trunk, with certain particularly painful spots. In making a diagnosis it may be confounded with other diseases, the chief of which are: (a) Locomotor ataxia; (b) rheumatism; (c) myalgia. In locomotor ataxia the pain is of a lightninglike rapidity, somewhat resembling neuralgia, but they are not localized, and are often accompanied by diplopia, and also absence of patellar reflex. In rheumatism the pain is diffused and influenced by movement, and in acute cases is accompanied by a high temperature, and more especially pain in the larger joints. In myalgia the pain does not occur in paroxysms, but is dependent on movement.

In the treatment of neuralgia one of the most important points is to pay particular attention to the general condition of the patient —that is, whether the patient is suffering from malnutrition, anaemia, or loss of tone, when the diet should be nutritious and easy of assimilation. In such cases cod liver oil and tonics are especially indicated. In examining cases due to anaemia, it is well to observe the bloodless condition of the gums and inner surface of the lower eyelid, since anaemia may be the cause, in spite of a fair amount of color in the face. Also, in all cases of neuralgia, the patient should, as far as possible, be kept free from worry, noise, or dazzling light, especially in the trigeminal variety. The hygienic surroundings of the patient should be looked after, and the patient must not be al-

lowed to remain in close, stuffy rooms, but have as much fresh air as possible, while avoiding draughts. A considerable amount of relief may be obtained by the use of small blisters applied close to the principal focus of pain. In very bad cases of long duration, a portion of the nerve may be excised, or, what is frequently very satisfactory in result, the nerve may be stretched. In cases where all attempts have failed, removal of the patient to a warm, dry climate is frequently successful. Special drugs are recommended in special cases of neuralgia, the most useful of which are quinine and iodide of potassium.

In cases of neuralgia resulting from rheumatism, salicylate of sodium, in ten to twenty grain doses twice or three times daily may be of some good, but it is of no use in chronic cases or gout. Failing this, one or two grains of potassium iodide, with about ten to fifteen grains of sodium carbonate, may be useful. In cases due to malaria, which is a very common cause of neuralgia, quinine, in ten to fifteen grain doses, twice or three times daily, sometime before a paroxysm, is very useful; it also is in cases of a gouty nature, when about one grain of the acetic extract of colchicum may be given as well. Quinine is very useful, especially in cases of neuralgia of the first division of the fifth cranial nerve.

Having briefly attempted to give a general description of neuralgia, I will now try to describe briefly neuralgia of the fifth cranial nerve, or trigeminal neuralgia, also commonly known as *tic douloureux*. Of all the nerves in the body, this is the one most commonly the seat of neuralgia; and when one sees, as we do in a hospital like ours, the largest number, I may say without exaggeration, the hundreds of cases which every week come under our care for treatment where the terminal branches of this nerve, in communication with the teeth, are subject to such constant irritation, and cause such intense suffering; and when we think of the large area of this nerve's distribution, and its numerous communications with other cranial nerves, there is no wonder that it should be affected more frequently than other nerves. This, the largest cranial nerve, has various functions. Arising by two roots, of which the anterior is the smaller and motor root, and the posterior the larger and sensory, thus closely resembling a spinal nerve, it is at once a motor nerve, a nerve of common sensation, and one of special sense, being a motor nerve to the masticatory muscles, and of special sense of taste by the lingual branch, and is the great nerve of sensation to the face and head.

Its communication by the nasal branch of the ophthalmic division through the lenticular ganglion with the third nerve accounts for disordered movements of the eyeball. With the facial nerve it communicates in several ways. Through Meckel's ganglion it communicates by the vidian nerve with the geniculate ganglion of the facial, also by the otic ganglion of the inferior maxillary nerve through the small petrosal nerve. Its communications with the sympathetic system of nerves are also numerous, through the gasserion ganglion, the otic, lenticular, and Meckel's ganglion. It also communicates through the otic ganglion with the glossopharyngeal nerve. Hence, with so vast a communication, neuralgia of the fifth cranial nerve may easily be set up by irritation of almost any nerve of the head. Besides its great area of distribution, when affected with neuralgia, there are a great number of special areas of tenderness and pain, corresponding chiefly with points where the nerve pierces bone or fascia, or becomes subcutaneous. Thus, in the ophthalmic division tender points exist where (a) the supraorbital nerve emerges from the foramen on the supraorbital arch; (b) where the nasal branch becomes cutaneous above the alæ of the nose. In the superior maxillary division, at the (a) infraorbital foramen, and (b) over the malar eminence. In the inframaxillary division the (a) mental foramen and (b) parietal eminence.

I think neuralgia of the fifth nerve may be divided into two classes: (1) that known as epileptiform neuralgia, the most severe form of all neuralgias; (2) that of a less severe form, due in the greater number of cases to the diseased condition of the teeth. Taking the first form, its most characteristic feature is the absolute suddenness with which a paroxysm comes on, and the fearful and intense and almost unbearable pain, and also the equal suddenness of its departure. A patient may be sitting down quietly, when he is suddenly attacked, the pain being so intense that he may get up and rush about the room in absolute despair. It may attack one or all the three branches. Frequently the muscles of the face are thrown into violent spasms, and also flushing of the face and lachrymation may occur. The paroxysms may last about twenty to thirty seconds, and may occur as often as every few hours, or even less, or may be absent for a few months, only to return as severe as ever. Patients who are victims to it acquire a worn, haggard, and aged expression. This class of cases occurs almost invariably in people past middle life, very rarely before the age of forty years,

and chiefly in people over sixty. Patients frequently come of a family which is tainted with insanity. This kind of neuralgia never seems to be of reflex origin, nor due to peripheral irritation of any branch of the fifth or other nerves.

The second kind, which is certainly of a less intense and severe character, is exceedingly common, and occurs in people of all ages, and which most frequently is due to some diseased condition of the teeth. The pain is of a darting, shooting nature, passing along in the course of the branches of the fifth nerve, and is frequently accompanied with a dull, gnawing sensation, and comes on in paroxysms. It is greatly aggravated by exhaustion, want of food, anaemia, and overwork or anxiety. Patients frequently obtain temporary relief by taking a dose of quinine. The most general cause of this class of neuralgia is chronic inflammation of the tooth pulp, but various other causes may give rise to it. The more common are: (1) Difficulty in eruption of wisdom teeth; (2) exostosis; (3) presence of secondary dentine; (4) alveolar periostitis; (5) overcrowding of teeth; (6) decomposition of a dead pulp in a confined space.

In dealing with cases of this kind it is frequently far from easy to arrive at a correct diagnosis, and it must not be inferred that neuralgia caused, for instance, by some affection of a tooth in the lower jaw should of necessity follow in the course of the inferior maxillary division, as it is by no means always the case. Indeed, the globe of the eye, the supraorbital nerve, and the temple, and especially a spot near the vertex, are frequently the seats of neuralgia due to affections of the teeth.

A very interesting case is recorded of a patient who for some years was subject to violent headaches confined to a small area a little to the left of the vertex, recurring three or four times a week. The spot became hot, and relief was afforded by pressure with the hand. A left upper canine tooth was suspected and was extracted with most satisfactory results, no recurrence of the attacks occurring. Other cases were also recorded, as the case in "Tomes' Dental Surgery," of a patient complaining of pain in a perfectly sound upper second molar, the real tooth causing the trouble being the corresponding tooth in the lower jaw, which was extracted under gas, and the patient could not be persuaded that it was the lower tooth and not the upper one that had been extracted, till he felt the space caused by its extraction in the lower jaw.

It must not be inferred that all cases of this kind of neuralgia are due to the teeth, for they may have their origin from various

other causes, and may be cases rather for treatment by a physician than by the dental surgeon, in which case it is advisable to refer them to their doctor; and also I think it would be advisable for all medical men who have patients suffering from any neuralgia of the fifth nerve to refer them to a dental surgeon, to have a thorough and close examination of their teeth, to see if there should be any likely cause for the neuralgia.

THE SALIVA IN PROGNOSIS.

BY W. D. COWAN, L.D.S., REGINA, N. W. T.

I HAVE, after devoting considerable attention to it, come to the belief that the saliva is an agent which may be employed to materially assist in determining the success that will attend the filling of many cavities, and that it is of sufficient importance to warrant greater attention at the hands of the dentist than it receives.

It is true, I think, that the teeth of some are much more susceptible to after influences than others, and to successfully determine a tooth in which such influences are likely to be harmfully exerted is often a very difficult task.

We may fill two cavities precisely similar to all appearances, in different patients, physically alike; we may do our work with equal thoroughness. In one the filling may prove a lasting blessing; while the other may, within a week or so, return and complain of inability to drink anything, either cold or hot, without causing undesirable pain, or of sharp, shooting pains, which reach to the eye or the ear, and of it being impossible to touch the filling with anything metallic. Of course, we do not become a party to the astonishment that they express that such a thing should occur, but we must either persuade our patient that after the formation of osteodentine these pains will cease; or possibly proceed to the removal of the filling and the treatment and filling of the tooth by different methods. Is it possible for us to determine between the two classes of patients?

The temperament of the patient will certainly help us; so also will the saliva, I believe, to a much greater extent than we generally accept, and that because it is a means of revealing to us, to a certain extent, the susceptibility of the patient to pain, and to these influences which produce pain, some patients, because of a blunted sense, being less subject to these influences than others. I have

noticed in my practice that it is seldom that any of my patients in whose mouths the saliva is of a thick, mucid, stringy character, and gathers in little bubbles at the corners of the mouth when the lips are closed or forms strings, as it were, from one lip to the other when the mouth is open, or who has a gummy, sticky, generally filthy-looking deposit of greater or less extent from the saliva on the lips, forming a light circle at the point of contact of the lips—are troubled with the symptoms previously described. I have therefore become very confident of success in filling cavities in the teeth of such a patient by using only the ordinary precautions and following the usual procedure. On the other hand, if my patient is gifted with an excess of saliva, and that of the most watery description, I would not attempt an all metallic filling, unless the cavity was of a very shallow nature. In other words, a filling that I would insert for the first patient, with only ordinary precautions, I would for the second patient use extraordinary precautions, probably a heavier capping, a combination filling, or at least proceeding as if I knew beforehand that the tooth were going to be subject to after influence.—*Dominion Journal.*

DR. BLACK'S PHYSICAL CHARACTER OF THE TEETH AND FILLING MATERIAL.

DEMONSTRATED facts cannot be successfully refuted by mere generalizations. They must be met by counterfacts, as incontestibly demonstrated by equally conclusive experiments. Physical proofs cannot be overthrown by abstruse metaphysical reasoning, and the world is waiting for some one to present a series of established tables that shall confute those of Dr. Black. He has made assertions, and apparently proved them, that are at variance with all our pre-conceived ideas. If he is right, we must look elsewhere than in the degree of calcification for the liability of teeth to decay.

The manner of calcification of the tooth may afford some clue to the mystery. We know that when calcific matter is held in suspension in an inorganic solution it is thrown down as an amorphous powder, or deposited in a structureless mass. But when it is held in the presence of an organic compound, like albumen, its precipitation is attended with a marked change in the phenomena exhibited. It assumes a definite form and becomes laminated in structure, while the organic matrix in which it may be deposited

becomes indestructible to ordinary agents. Thus when bone is formed through the deposition of the lime salts in a cartilaginous matrix, the calcific matter assumes a definite form, because the cartilage contains the organic matter that works the change. The conditions are those under which the calcification of the tooth proceeds. Instead of the lime being deposited in an amorphous manner, calco-spherites are formed, and the calco-globuline in which they are deposited, or which forms their base, takes on a new character. In the light of these facts it is quite possible that, although the lime salts in two teeth may be identical in quantity and in structure, the calco-globuline base may not be equally resistant to disintegrating forces.

But, whatever is the real esoteric truth of the matter, such investigations as those of Dr. Black should be encouraged and stimulated. If he shocks us once, we should straightway invite him and others to shock us some more. We need stirring up to provoke inquiry. There is no hypothesis too sacred for analysis of its truth. There is no dogma that is above the most thorough investigation. If our theories are at variance with demonstrated facts, so much the worse for them. The philosopher that sets out with an assumption, and then attempts to make facts conform to it, is not a true investigator; he is a perverter of the truth.—*Editorial in Practitioner and Advertiser.*

CATHODE PHOTOGRAPHY.

PROF. A. W. WRIGHT, who occupies the Chair of Experimental Physics at Yale University, and is in charge of the Sloan Physical Laboratory, has been for upward of twenty years occupied with the investigation of the phenomena of electrical discharges in vacuum tubes, and has made many experiments both in the construction of those tubes and in studying the electrical effects with them. His attention was attracted by the reports of the recent work of Prof. W. C. Roentgen, of Wurzburg, Germany, in photographing objects behind opaque bodies by the agency of the well-known cathode rays, which had already been brought into special prominence among physicists by the ingenious researches of Philip Lenard, of the University of Bonn.

Lenard made use of the fact, which had been previously announced by Hertz, that thin leaves of metal were rather freely traversed by the cathode rays, and that aluminum was especially

penetrated by them, much as glass is by light. As glass very largely intercepts the cathode rays, Lenard made in the glass wall of a vacuum tube a small opening which he covered with a thin sheet of aluminum, thus forming a kind of window through which the rays could pass with freedom, and thus be studied in the air outside of the tube. Lenard's observations were made chiefly by the aid of phosphorescent screens placed in the path of the rays, but he also made use of sensitive photographic plates. On these photographic plates he obtained impressions through various substances laid over them, as, for instance, thin plates of quartz and aluminum, and he even obtained these photographic impressions when the plate was inclosed in an opaque box.

Roentgen, whose recognized talent and eminence in physical studies give authority to any statement which comes from him, has, according to reports from Europe, developed the phenomena described above on so large and impressive a scale as to arouse the widest interest. This he has been able to do by the use of powerful apparatus and a series of the most ingeniously devised experiments. Prof. Wright has now confirmed completely the results of Roentgen's experiments, startling as those results at first appeared.

Prof. Wright used in his experiments a high-vacuum tube—namely, a tube in which the exhaustion is carried to so high a point that the tension of the gas left in the tube is measured by a few millionths of ordinary atmospheric pressure—the so-called Crookes tube—and connected to the poles of an induction coil in action. The discharge from the negative electrode of such a tube gives the cathode rays, which, it must be emphasized, are almost nonluminous. Although a considerable part of the energy of these rays is stopped by the glass of the tube itself, enough passes through, with the use of a powerful apparatus, to produce effects at a comparatively long distance. These rays operate very energetically on a sensitive photographic plate, and produce their effects even when a thick layer of wood or other opaque nonmetallic substance is interposed. The sensitive plate may even be completely inclosed in a wooden box, as has been so strikingly shown by Roentgen in his experiments. The objects, the effects of which are to be investigated, may be laid on the top of the box in the path of the cathode rays.

Prof. Wright's experiments were made with a great variety of substances, and it was found that strong impressions were obtained on a photographic plate even when it was inclosed in an opaque

wrapping of black paper and covered with a pine board half an inch thick.

It was evident at the outset that the order of transparency of different subjects for the light rays was very different from that which is found with the cathode rays. Thus pieces of glass were more opaque to these rays than some of the metals or than ebonite, which is perfectly opaque to luminous rays, but transmits the cathode rays with great freedom. Among the metals aluminum is especially distinguished, and in one of the experiments of Prof. Wright an aluminum metal box left its impress on the plate so clearly as to show both the design and lettering. In this latter case the layer between the metal and the sensitive plate was absolutely opaque ebonite, which is the substance used by photographers to darken completely the plate holder.

In other experiments that were made by Prof. Wright with pine board interposed a closed paper box containing aluminum grain weights left a trace on the plate which appeared as though the box were almost transparent and the weights themselves somewhat translucent. An ordinary lead pencil lying near the box on the interposed board showed its graphite core by a darker trace in the middle of the fainter impress of the wood of the pencil.

Another paper box contained three small spheres imbedded in cotton, one of platinum, one of brass, and one of aluminum. In this case, also, the box and the cotton appeared so nearly transparent as to leave but a slight impression on the plate. The brass and platinum spheres intercepted a large portion of the cathode rays, the aluminum sphere a much smaller proportion. A number of American coins—silver, copper, and nickel—produced strong impressions, showing almost complete interception of the rays; but there were differences, the copper coins transmitting more than the nickel, and the nickel more than the silver.

In an earlier experiment a somewhat thinner board of whitewood was used, the plate being wrapped in black paper as before. On this board was laid a pocketbook of dark Russia leather with several flaps of leather within, and containing seven cards, two of them thick. A number of small coins were slipped into the inside compartment of the book, which was then closed, and laid on the board under the tube. On the plate when developed only a faint shading was left by the pocketbook, but the coins left a strong and definite picture, showing with surprising clearness their number and position in the book. A trace of Prof. Wright's hand, which

rested on the board during this experiment, was also strongly depicted. The outlines of the hand were somewhat blurred, and in the palm faint traces of the passage of the rays between the bones could be detected, but there was little of the effect, reported by Prof. Roentgen, of the greater distinctness of the impression made by the bones.

It may be said with regard to the pictures produced on the sensitive plates by these experiments that they have to the eye an appearance similar to those of shadows thrown by the object on a surface when the source of light is but a short distance away. If the object is at a short interval from the illuminated surface, the image is somewhat enlarged, also distorted if the rays fall obliquely, and the edges somewhat blurred or diffused. If the distance of the tube is increased, or the interposed opaque layer is thinner, so that the object experimented on is brought quite near the sensitive plate, then the outline of the picture is sharper and clearer, and the proportions are more nearly normal. In Prof. Wright's first successful experiment, instead of photographic plate a piece of sensitive bromide paper was used, simply wrapped in stout black paper absolutely opaque, on which the objects were laid, consisting of a pair of scissors, a lead pencil, and a quarter of a dollar. These objects left a strong impression, with remarkably clear outlines of their exact forms.

The reports of Prof. Roentgen's work state that the cathode rays do not suffer refraction, and that therefore no image is formed by the action of a lens through which they pass. Prof. Wright's experiments confirm this, and seem to indicate further that they are not susceptible to double refraction or to reflection. In this respect they are radically different from rays of light, as also from the rays produced by electric oscillations as described by Prof. Hertz. The real nature of these wonderfully mysterious rays forms a most thrilling subject of future investigation, both as to methods and scientific proofs. Prof. Wright, as the result of his experiments in photographing thus through opaque bodies, sees no obstacle to the wonderful precasts of Prof. Roentgen and even more amazing ulterior results.

Prof. Wright's successful experiments were made several days ago. To-day he exhibited equally remarkable results, delineating a very large variety of substances taken through the ebonite of a photographer's case.—*Items of Interest.*

Extracts.

THE AMERICAN DENTAL ASSOCIATION MEETING,

THE developmental impulse in dentistry is distinctly evolutional; its growth proceeds through the working out of forces which are brought into active operation as the result of the ever increasing complexity of our social organization. As civilization has presented more and more exacting conditions of development in all of our social relationships, the growth of dentistry has been stimulated accordingly to keep pace therewith. The various stages of dental growth seem each to have had a distinctive motive or factor which has been characteristic of the development of that period. The past decade, for example, has witnessed decided advances in both the science and art of dentistry. Our knowledge of etiology, pathology, and therapeutics has advanced, and improvement of operative procedures and technique has been most marked. A natural result of activity along these lines has been the acquirement of a vast amount of valuable material in the shape of *data* which has to be incorporated and assimilated as a necessary part of the working equipment of the practitioner. That it shall be so incorporated and assimilated implies and necessitates a higher standard of dental educational requirement, and for the accomplishment of that end a better and more thorough system of dental instruction has become necessary.

Finally, and as a direct result of the conditions stated, a readjustment of our legislative features regulating and maintaining our professional standards has become an imminent necessity. It is these features which characterize our present stage of development.

The work of our national body at its meeting just passed has been notable by virtue of the prominence of the factors here alluded to.

Taken as a whole, in view of the total output of work, both as to quantity and character, the meeting must be regarded as a decided success. The activities which are most prominently at work in shaping the growth of dentistry in the United States were strongly reflected in the proceedings of this meeting of the Association, giving practical evidence of the importance of our great national body as an exponent and representative of the whole dental profession of this country.

The scientific value of a number of the papers read before the Association was of a high order, and they will constitute a definite addition to our knowledge. Especial mention should be made of the work of the section on anatomy, pathology, and surgery. The results of Dr. Cryer's original research into the anatomy of the maxillary bones must compel a revolution in much of our previously received teaching in that department.

The tendency toward unification of standard in dental legislation and toward a similar end in dental education, which has been manifested for some years past throughout the United States, found emphatic expression in the collateral work of the Association—*i. e.*, in the deliberations of the National Association of Dental Examiners and the National Association of Dental Faculties. This tendency is not simply a growing sentiment; there has been an expressed desire on the part of the dental profession to achieve uniformity in these matters through all the States. The great obstacle to absolute uniformity in legislation in this country is the autonomy of the States. Legislation with regard to dentistry comes under the State police powers, which are guaranteed to them as an individual right by the Constitution of the United States. The enactment of a national law creating a uniform standard would, therefore, be clearly unconstitutional. The only possible means for securing the end in view has been by the creation of a strong moral sentiment in favor of uniform standards, and that has been largely the outcome of the work of the Faculties' and Examiners' Associations. By this means they are continually reaching out toward a harmonization of the several State standards upon a higher plane with respect to the two important factors of dental progress—education and legislation—and gaining such strength and solidity of position that in the course of time, if indeed it is not already true, the lack of constitutional legal authority will cease to be of any practical moment.

Independently of the distinct advance along legislative lines has occurred a rapid and substantial growth in dental educational methods, comprehended in what is known as the technic system. Three years ago a few enthusiastic teachers who had, from investigation and practical experience in the workings of the technic system, realized its great value, met together and organized the National School of Dental Technics, the youngest and perhaps the most interesting offshoot of the educational phase of our evolution. Its purpose is the increase and spread of the sphere of usefulness of the system, and the securing of an opportunity for the inter-

change of ideas and experiences in its development and practical application. The National School is made up of delegates from those colleges in which the system is installed. At its incipiency eleven colleges were represented; at the time of the late meeting its membership was increased to twenty-nine. The proceedings consisted of an exhibit of the work done in the application of the technic method to various departments of dental education, and the discussion of ways and means for its further development and betterment in the practical work of teaching. So rapid has been the growth of this system, and so general has been its acceptance, that the results were to many a revelation. It is quite evident that an entire revolution in our classical methods of dental education is near at hand.

That the technic system is based upon correct psychological principles cannot be questioned; and no one can doubt that where the system is intelligently applied, its value in improving the educational equipment of the student is far beyond anything heretofore accomplished in that direction. A correct appreciation of the principles upon which it is based is, however, essential to its successful application. A source of danger affecting its efficiency may easily arise from a misconception of just what is intended to be achieved by the technic system—that is to say, in regarding it merely as a system of manual training. It is a manual-training method, but its distinctive trait is not a training of the hand, but a training of the brain through the perceptive faculties, the most prominent of which in this connection being that of touch has led to its being designated as a manual-training method. Now, according to the way in which this system is regarded by the teacher, is it likely to result in success or failure? If it is regarded simply as a manual-training means, there is grave danger that a multiplicity of details and methods will be introduced for hand training having but little value in systematically directing the brain in the desired path, leading to confusion and waste of force, and thus failing to produce an adequate educational result. If, on the other hand, it is thoroughly recognized that the technic system is a valuable method for intellectual cultivation and training, it will furnish to the work of the Faculties Association a great and valuable pedagogical motive, second only, if not equal, in importance to its legislative function. That the National School of Dental Technics should ultimately become an integral part of the Faculties Association, or, at least, closely correlated with it, would seem desirable. While the

function of the Faculties Association is educational, it concerns itself principally with the judicial and legislative factors of the educational problem. If these two could be harmoniously correlated with the pedagogical factor alluded to, much good would naturally flow out of their co-operative efforts toward their common end and purpose: the betterment of our educational standards.—*Editorial in Dental Cosmos.*

REVOLUTION IN SURGERY.

DR. J. H. McCLELLAND, of Pittsburg, in describing a discovery which, it is said, will revolutionize the administration of anæsthetics, the discovery of Dr. H. L. Northrup, of Philadelphia, says:

"The administration of oxygen with chloroform marks an advance in the history of anæsthesia second only to the discovery of anæsthetics itself.

"It consists simply of forcing oxygen gently through a small body of chloroform. The apparatus consists of an ordinary chloroform inhaler, such as Khrone & Geseman's, of London, preferred, or a Junker. Instead, however, of forcing air through a chloroform bottle with a bulb, as ordinarily done, a tube is substituted, which is connected with a cylinder of oxygen. This is turned on fast or slow, to suit the necessities of the case. It is perfectly agreeable to the patient, and there is no strangling, seldom nausea during or after the operation, and the pulse steadily gets stronger. Under almost any circumstances the heart action is strengthened, and respiration becomes more regular.

"The average amount of chloroform used is four drachms an hour. The average time required to bring the patient under the influence is four and a half minutes in a record of one hundred cases. Albuminuria is no bar to its use.

"The longest case in which I have used it was three hours and forty minutes. In that time we used fifteen drachms of chloroform, or less than two ounces. By the new method not more than one-tenth as much fluid is used. In this way the minimum amount of chloroform is used and the maximum amount of oxygen is given. The patient takes it quietly, and succumbs without a struggle. The case which I have mentioned was one in which the patient could not possibly have survived under an anæsthetic administered in the old way. To-day she is well and strong. On returning to consciousness it is like awakening from a refreshing sleep. During the time of unconsciousness the face of the patient is of a ruddy, healthy color, as though in the best of health.

"The method has been found to work only with chloroform. With ether the results are not any more satisfactory than the old way."—*Exchange.*

THE COST OF A BOY.

It would be a good thing for all boys, and girls too, to get some idea—in real figures—of what their parents do for them. P. B. Fisk gives a lecture on the cost of a boy. He computes that at the age of fifteen a good boy, receiving the advantages of city life, will cost, counting compound interest on the sum invested, not less than five thousand dollars. At twenty-one he will not cost any more unless he goes to college, when he will cost nearly twice as much. A bad boy costs about ten thousand dollars at twenty-one, provided he does not go to college. If he does go, he costs as much more.

Mr. Fisk thinks that girls are nearly as expensive as boys. The computation, however, comprises only the pecuniary cost of raising a boy. The value of the mother's tears and the father's gray hairs are beyond the reach of figures to express. The money side is far the lesser of the two.

And when a man has put ten or twenty thousand dollars into a boy, what has he a right to expect of him? What is fair? Is it fair for that boy to work himself to death, to run, jump, play ball, or do anything in such a way as would disable him or break him down? Is it fair for him to despise his father and neglect his mother? Is it fair for him to ruin himself with drink, defile himself with tobacco, or stain himself with sin? Some of us have put about all our property into boys and girls; and if we lose them, we shall be poor indeed; while if they do well, we shall be repaid a hundredfold. Boys, what do you think about the matter?—*H. L. H.*

TWENTY years ago I extracted a tooth for a man "without pain"—that is, he said it did not hurt him. This was the way it was done: I had put a large molar forceps well down on a lower molar for the purpose of extracting it, when he told me to "hold on." I answered him that I should certainly do so, and continued to pull. He got mad and attempted to strike me. Failing in this, he placed his foot against the window casing and pushed the chair over backward. Just as his head struck the floor the tooth came out. He assured me the extraction was without pain.—*C. S. Talbert, in Items of Interest.*

SOME REMARKS ON ANÆSTHESIA FROM ETHER AND CHLOROFORM.

BRICKNER (*Medical News*, 1895) contends that for general use ether is a safer narcotic than chloroform. He urges that more care and greater consideration be given to the administration of anaesthetics in hospitals. Following the investigations of Kemdrat and Kolisko, he points out the danger of chloroform in cases where adenoid vegetations or other marks of the *habitus lymphaticus* exist. The writer commends the preliminary use of cocaine in the nostrils before anaesthesia by ether or chloroform, and has had gratifying results from the rhythmic traction of the tongue as described by Laborde.

A SUBSTITUTE FOR MORPHIA.

SILAS T. YOUNG, Professor of Nervous and Mental Diseases, Clinical College of Medicine and Specialty Hospital; Professor Nervous Diseases, Chicago Postgraduate Medical School, etc., writes: "Febrinol (Fuller & Fuller Company) is a safe and perfect substitute for morphia. In the distress occasioned by la grippe it is particularly useful, relieving the pain at once, keeping the patient comfortable and shortening the attack. No 'drug habit' or bad effects follow its use. In neuralgia, rheumatism, dysmenorrhea, and all painful nervous conditions, febrinol gives more and quicker relief than any other remedy."

A PHARMACEUTICAL TRIUMPH.

THERE is probably no laxative or cathartic in the *materia medica* which is more widely known and more generally used, especially as a home remedy, than castor oil. Its only objection has been its taste. Now, however, even this has been removed, and we have "a pleasant castor oil" called laxol, a pure castor oil sweetened with benzoic sulphinate and flavored with oil of peppermint. Laxol is used throughout many of the best hospitals in the East, where it has been known for some time.

AS AN ANTISEPTIC.

IN the surgical operating room of the Buffalo General Hospital, common ground mustard is now used in preparing the hands for operations, and in sterilizing the surface preparatory to incisions. It is an excellent disinfectant and deodorant, and it is by far the most effective of the vegetable antiseptics.

Commencements.

COMMENCEMENT EXERCISES, DEPARTMENT OF DENTISTRY, VANDERBILT UNIVERSITY, SESSION 1895-96.

A SPLENDID assembly filled the chapel of Vanderbilt University last night to witness the Commencement exercises of the Dental Department. The excellent programme prepared was well carried out in every respect, and between the various numbers the Vanderbilt Glee Club rendered some of their music, and every appearance was greeted with an encore so hearty that it had to be responded to.

Chancellor Kirkland opened the exercises with prayer, making a special plea for a blessing on the young men who were about to go out into the world to make name and fortune.

Dr. W. H. Morgan, the Dean of the Dental Department, made the following statement to Dr. J. H. Kirkland, Chancellor of Vanderbilt University, showing the excellent condition in which the close of the session of 1895-96 finds the dental school:

I have the honor to report that the Department of Dentistry has closed its regular session for 1895-96. The following students have complied with the requirements of this department, and are recommended by the Faculty to the officers of the university as entitled to the degree of Doctor of Dental Surgery: George Copeland Albright, South Carolina; Arthur Barnett, Alabama; John Boozer, Texas; Moscow Branch Carter, Tennessee; Edward Freeman Comeygs, Texas; James William Crawford, Illinois; Frank Pattison Day, Florida; Alfred William Dupuy, Alabama; John Cecil Felix, Kentucky; Charles Grigsby Foulks, Alabama; James Blount Jordan, Tennessee; William Felix McKenney, Indiana; Joseph Thompson Meadors, Tennessee; Thomas Franklin Nanny, Kentucky; George W. Parker, Ireland; Robert Luther Parker, South Carolina; James Fogg Pickens, North Carolina; John McNabb Reeves, Alabama; Lewis Frederic Riggs, Canada; Edgar Dunn Rose, Texas; Robert Gordon Rothrock, Tennessee; Jesse Taylor Spain, Tennessee; George Anderson Slayden, Tennessee; William Andrew Taylor, South Carolina; John Calhoun Whitefield, South Carolina; Byrne Alfonso Wilson, Missouri; Albert Benjamin Wiggington, Illinois; Charles Bell Woodward, Tennessee; Lucian T. Wyllis, Tennessee.

The term just closing has been a very satisfactory one. The teachers have been faithful in their work and punctual in attendance. No serious case of illness from any cause has occurred. There were one hundred and fifty-one students registered, of whom one hundred and fifty were in regu-

lar attendance. I think that the officers and friends of Vanderbilt University may justly congratulate this department upon its success, the last class being the largest as well as the best class so far in the history of this school. The large number of patients who visited the infirmary afforded superior advantages for instruction in practical dentistry.

Very respectfully,

W. H. MORGAN, *Dean.*

Dr. Morgan also spoke of the growth of the department, which has been steady since its inception, and added that the character of the students had also improved. During the session now ended three young ladies had attended the school. He called attention to the fact that women had won distinguished success in the dental profession.

To the young men who were going out to represent the university, he said that they carried the full indorsement of the institution, and urged them, inasmuch as they were to be leading men in communities, to exemplify their worth in their bearing. At college they had laid the foundation for a life work which could only be made successful through constant study. He warned them against the adoption of fads, and the yielding to quack methods. In refutation of the complaint that there were too many dentists, Dr. Morgan said that there were not enough dentists now to keep the people's teeth clean, if they did nothing else. There is always a place for qualified men in the world.

When the graduating class was presented to the Chancellor by the Dean, Mr. Edward F. Comeygs, of Texas, delivered as a valedictory an address on "The Good of Life." He spoke smoothly and in well-chosen words, reviewing the beauty of a well-spent life. The vanity of worldly glory was eloquently contrasted with the excellence of a life which made the world better for its very existence.

Chancellor Kirkland spoke briefly to the graduates. He told them that they were visitors there, but in the morning they would be going forth to a new fight, and they would have to prove their worth to the world.

Dr. C. R. Atchison then awarded the medals in an appropriate and brief address. The medalists were as follows: Founder's medal, to the first in general proficiency, George C. Albright, South Carolina; Morrison Bros.' medal, second in general proficiency, W. F. McKenney, Indiana. Honorable mention was made of J. W. Crawford, of Illinois, for being third in general proficiency. Prof. H. W. Morgan's medal for best fillings, Edward D. Rose, Texas; Prof. Ambrose Morrison's medal for best senior examination in

anatomy and physiology, E. F. Comeygs, Texas. Dr. James A. Dale's medals for proficiency in operative and mechanical dentistry were awarded to E. B. Cade, Tennessee, of the junior class, and R. B. Sadler, Arkansas, of the freshman class. Dr. J. M. Bass's medals in anatomy and physiology were awarded to Miss Celia Rich, of the freshman class, and R. E. D. Irwin, of the junior class. Prof. Larkin Smith's medal for proficiency in histology and pathology, open to both freshman and junior classes, was won by Miss Celia Rich.

The benediction by Chancellor Kirkland dismissed the audience.—*Nashville Daily Press.*

COMMENCEMENT EXERCISES, DENTAL DEPARTMENT, UNIVERSITY OF TENNESSEE, SESSION 1895-96.

THE Commencement exercises of the Dental Department of the University of Tennessee last night drew a fashionable audience that almost packed the Vendome Theater back to the doors. It was a pleasing programme, and was universally complimented. On the stage were seated members of the Faculty, members of the Board of Public Works, and others. Especially noticeable was the stage setting, flanked with palms. The music of the evening was furnished by the Jesse French Orchestral Society, and was given after each number.

Dr. W. P. Jones, President of the Faculty, introduced Rev. J. C. Morris, who offered the opening prayer. He asked especially for a blessing on the young men going out into the world to practice the dental profession.

Dr. J. W. Jordan was then introduced to deliver the address conferring the degrees. Dr. Charles W. Dabney, President of the University of Tennessee, who was to have delivered the address, was suddenly recalled to Washington by a telegram from Secretary Morton, and sent Dr. Jordan to take his place. Dr. Jordan's address was plain, practical, and sensible. He advised the young graduates to do everything possible to hold up the standard of the profession into which they had embarked.

Prof. R. B. Lees, Dean of the Dental Department, assisted Dr. Jordan in presenting diplomas to the following graduates of the Dental Department: J. F. Coyle, Alabama; T. B. Fuller, Texas; James Harmon, South Carolina; A. F. Hudson, Tennessee; R. L. King, Mississippi; Z. W. Moss, Missouri; W. P. Menzies, Tennes-

see; S. P. Myers, Pennsylvania; J. L. Pennington, Tennessee; H. E. Sanders, Tennessee; F. R. Sandusky, Tennessee.

Dr. William P. Menzies then delivered the valedictory of the Dental Department. He spoke in eloquent language of the progress of dental surgery in this country, which he said led all the world in dentistry.

A medley of Southern airs by the orchestra was greeted with many cheers.

Prof. L. G. Noel, M.D., D.D.S., delivered the charge to the dental graduates. His parting injunction was never to expect failure, but to win success. Success did not always mean financial success. Some of the best-known men in the various branches of medicine had died so poor that their brethren had had to help care for their families. In the great gulf of time all questions of wealth were forgotten, while professional achievements lived in the history of humanity. Not that they should labor without reward, for the laborer is worthy of his hire. To succeed, the dentist should be a gentleman of culture and refinement. Whatever of polish he might lack at the outset could be acquired. Books should be the companions of leisure hours, for in them all the knowledge of the past was written down. Current literature should not be neglected, unless one wanted to be known as a man of one idea, and as one who talks "shop." Choose as companions those intellectually and morally your superiors.

The prizes were then awarded by John Bell Keeble, LL.D., Professor of Medical Jurisprudence, as follows: Faculty medal, H. E. Sanders, Tennessee; faculty second honor (Morrison Bros. medal), J. L. Pennington, Tennessee; faculty third honor, A. F. Hudson, Tennessee. In awarding the prizes Mr. Keeble spoke in a most humorous and interesting way, and made a few appropriate remarks on presenting each to its winner.

A large number of flowers and floral designs were then distributed to the graduates.

Rev. J. C. Morris dismissed the audience with the benediction.—*Nashville Daily Press.*

Editorial.

WE are just in receipt of a communication from Dr. L. H. Jeffries, Secretary of the Mississippi State Dental Association, in which he informs us "that the usual reduced railroad rates will be given to those attending the meeting at Jackson, April 21," etc. We are also informed that the Edwards House has kindly made a special rate of \$1.50 per day to the Association, and will doubtless prove headquarters for the members.

ALABAMA DENTAL ASSOCIATION.

A CAREFUL perusal of the notice of the Alabama Dental Association will convince the most skeptical that the next session of that Association will be one of much interest and profit to all who attend. The officers are men of recognized ability and push, and are using their utmost exertions to have a meeting of unprecedented success. The place of meeting should prove a drawing card, and the excellent accommodations and service to be obtained at Hotel Albert is an additional attraction for all who wish to enjoy excellent fare and courteous attention. The Executive Committee is bending every energy to make the Association one of great interest and profit. We have heard it intimated that our Selma brethren have a little enterprise in view that will prove an agreeable surprise to all concerned. You cannot afford to be absent.

"MUNICIPAL SANITARY LEGISLATION."

IN these days of scientific search after the causes of all disease and rapid spread of the theory of microörganisms as factors in all pathological conditions we do not hesitate to give space to the able paper by Prof. Coplin on "Municipal Sanitary Legislation," to be found on page 49. It presents the statutory difficulties to be encountered in legislation on the subject in a new form, and as we have not seen the subject viewed before. The *data* and arguments must at once impress the reader with the fearful responsibility to be met and the difficulties to be overcome. A study of the paper will reward any one, and we ask also a careful examination of the

selected article on page 63—"Dangerous Communicable Diseases"—a paper distributed by the Michigan State Board of Health for the instruction of superintendents and teachers. It is a pity that every State Board in the Union cannot be induced to follow this example.

A PROGRESSIVE INSTITUTION.

In keeping with the progressive policy which has always characterized the Department of Dentistry of Vanderbilt University, its Faculty have decided to adopt a graded system of instruction, beginning with the ensuing session. Increased facilities will also be afforded the student of dentistry by the establishment of a lectureship upon pathology and bacteriology; also laboratory work in these important branches will in the future be required of all matriculates. The extensive laboratories of the Medical Department, which are provided with the most improved apparatus, will be utilized in the conduct of these classes.

A. M.

STERILIZED MILK FOR INFANTS.

DR. BENJAMIN LEE, in a letter to the *Journal of American Medical Association*, calls attention to some effects of confining infants to this diet, and asks the pertinent question: "Shall we continue to sterilize milk for infants?" He says while it would avoid the dangers arising from the occasional presence of bacteria of typhoid fever, tuberculosis, and other infections, it may prove a serious obstacle to assimilation and nutrition, and thus lead to the development of rachitis, scurvy, and other allied conditions of malnutrition.

Dr. A. Jacobi, in a review of infant feeding in the *January Pediatrics*, while urging the sterilization of milk in strong terms, adds: "Sterilization has been claimed to be no unmixed boon, because it changes the chemical constituents of milk." Another writes: "Only one observation struck me in a few cases. The formation of muscles and parts of bones appeared to be slow, the teeth came a number of weeks or months too late, the cranial bones turned slightly soft in a few instances."

Dr. Jacobi predicts that "before long more than to-day cereals must be given to make teeth when milk food alone does not suffice for their development." And he further suggests that where it is possible to obtain milk from cows of authenticated good health, and

when other sanitary precautions are known to have been taken, the milk obtained fresh and kept in a cool temperature, boiling is probably preferable to sterilization or Pasteurization. The boiled milk may tend to constipation, but that is a slight objection, which may be overcome.

While nothing can certainly equal the mother's milk, next to that for convenience, economy, and nourishment, there is no artificial preparation that equals the cow's milk when it has been properly diluted and treated. The best combination to feed it is by making it two-thirds water, adding enough sugar and salt to make it palatable, and bringing it just to a boil over a slow fire. It should then be given the infant from a spoon or out of a cup. Nursing bottles are a curse, and should be legislated out of existence.

BOOK NOTES.

CATCHINGS' COMPENDIUM OF PRACTICAL DENTISTRY for 1895. B. H. Catchings, D.D.S., Editor and Publisher, Atlanta, Ga. Price, \$3.

Dr. Catchings presents in the volume for 1895 more than three hundred pages of carefully selected matter from nearly one hundred publications. Every dentist should have not only one copy, but the complete set, in his library. The review of the contributions to dental literature presented makes a fine showing of the amount of time, labor, and earnest effort members of the profession are devoting to its advancement. Nowhere, except in the "Compendium," can these practical results be seen, or the benefits to be derived from them be had.

COMMUNICATION.

To the Members of the Tennessee State Dental Association.

Again I appeal to you for a renewed interest and harmony of action in regard to our May meeting. It is absolutely essential that each man do his full duty if we hope to be edified to the fullest extent. It is no one man's work; we are each one vitally interested in this work. Come prepared to say something that will be of interest to your fellow-practitioners. Join heartily in the discussions, and see all the clinics, every one of which will help you. Hoping for a large gathering and a most pleasant and profitable time.

Fraternally,

B. D. BRABSON.

Associations.

IMPORTANT ANNOUNCEMENT.

THE Tennessee Dental Association will meet in Nashville, Tenn., Tuesday, May 5, and be in session four days.

Every registered dentist in reputable practice in the State is invited to attend, and contribute papers, give clinics, and take part in the discussion.

The Executive Committee is preparing a good programme for the occasion. The President, Dr. B. D. Brabson, of Knoxville, Tenn., is working hard to have a large attendance, in order that much advancement be made. Tennessee has some four hundred and seventy-five practitioners within her borders; certainly as many as one hundred and fifty should attend. If you do not receive an invitation from the Executive Committee or some official member of the Association to write a paper, make a clinic, or do something toward making the meeting a success, please do not hesitate to come prepared to do something. How any man now engaged in the practice of dental surgery can fail to attend such meetings is hard to understand. Many improvements are developed, and much advancement is accomplished, at these meetings.

The best railroad rates will be made possible upon the certificate plan. It is hoped that the clinical feature of the meeting will be unusually interesting, so that we may not only have papers explaining how to do a thing, but an exhibition of *how it is done*. So come, and bring your instruments, and give the Association the advantage of what you know, and can do in practice.

The State Board of Dental Examiners will be in session during the meeting. The Board is in many things guided by the instructions received from the Association. Every dentist in the State is interested in sustaining the Association.

J. Y. CRAWFORD,
Chairman of Executive Committee.

MISSISSIPPI DENTAL ASSOCIATION.

THE next annual meeting of the Mississippi Dental Association will be held Tuesday, April 21, 1896, at Jackson, Miss.

Chairmen of Sections will please report to me at once titles of

papers to be read by members of the various sections, that they may be announced on the programme, which we are now preparing to issue.

W. T. MARTIN, *Chairman of Executive Committee,*

Yazoo City, Miss.

Authorized by T. C. West, President, Natchez, Miss.

As will be seen from the above communication from Dr. W. T. Martin, of Yazoo City, Chairman of the Executive Committee of the Mississippi State Dental Association, the time of meeting is April 21, and we regret that up to the present date we have not received their programme, so that we could give it space in this issue of the HEADLIGHT. We understand from those in charge that a good meeting is in prospect, and we bespeak a large attendance. The place of meeting, Jackson, Miss., is centrally located, and accessible to the profession throughout the State; hence every town in the State that contains a dentist should be represented. The local dentists and the good citizens of the city will extend the usual hearty welcome, and do all in their power to render the occasion one of profit and pleasure. Its officers and Executive Committee are progressive men, and an attractive programme is assured. None who have the interest of the profession at heart, or even their own good, can afford to absent themselves.—EDITORS.

NEXT MEETING OF THE SOUTHERN DENTAL ASSOCIATION.

NOVEMBER and Nashville were the time and place of meeting fixed at Atlanta; and now that the great Centennial Exposition has been postponed, and owing to the fact that November is a bad month for the dentist to be away from home, a change is talked of. Dr. W. R. Clifton, Chairman of the Executive Committee, has been corresponding with Dr. Thompson, the President, and members of his committee, but no definite conclusion has been reached. It is almost certain that a change will be made, and we hope that the committee will not delay coming to an agreement and making the announcement as early as possible.

Let the meeting be held in July on Lookout Mountain, where it will be cool, pleasant, and arrangements can be made to accommodate all at one hotel; or at Asheville, N. C., for similar reasons.

If the meeting is held just before the American, say the last week in July, many would attend both, making but one trip.

Let there be no delay in sending out notice of the changes. The delay hurt the Atlanta meeting last fall.

THE ILLINOIS STATE DENTAL SOCIETY.

THE thirty-second annual meeting of the Illinois State Dental Society will be held in the Senate Chamber, Springfield, Ill., May 12 to 15, 1896. The Executive Committee has been especially fortunate in preparing a very interesting programme. No member can afford to be absent. Dentists practicing in the State are cordially invited to attend and, if possible, to become members of the society. The profession outside the State is always welcome at these meetings. The hotels and railroads have granted the usual reduction. Pay full fare in coming and take receipt therefor; this, when countersigned by the Secretary, entitles the holder to return for one-third the usual fare.

LOUIS OTTOFY, *Secretary.*

Masonic Temple, Chicago.

INTERSTATE DENTAL MEETING.

THE State Associations of Nebraska, Iowa, Kansas, and Missouri have arranged to hold a great joint meeting at Excelsior Springs, Mo., June 23 to 26, 1896. Most of the States have abandoned their regular annual meetings, and preparations are now completed which assure a rare treat to every dentist who attends.

The programme embraces five papers and six clinics from each State, besides a number to be furnished by distinguished men from other States. No dentist in these States can afford to miss this meeting.

S. C. A. RUBEY, *Secretary.*

106 E. Franklin Street, Clinton, Mo.

TENNESSEE DENTAL ASSOCIATION.

THE twenty-ninth annual meeting of the Tennessee Dental Association will be held in Nashville, Tenn., commencing the fifth day of May, 1896. All reputable registered dentists are invited to be present. The officers are : Dr. B. D. Brabson, of Knoxville, President; P. D. Houston, of Lewisburg, Secretary. Drs. J. Y. Crawford, D. R. Stubblefield, and J. A. Dale, of Nashville, are the Executive Committee.

P. D. HOUSTON, *Secretary.*

To the DENTAL HEADLIGHT.

The following is a list of the committee of fifteen that were appointed by Dr. Brabson, President, to communicate with all the registered dentists of Tennessee and invite them to be present at the next meeting of the Tennessee Dental Association, commencing on the 5th day of next May in Nashville: Drs. A. R. Melinda and J.

S. Cotrell, Knoxville; Dr. U. D. Billmeyer, Chattanooga; Dr. G. C. Brouse, Harriman; Dr. G. W. Day, Cleveland; Dr. N. C. Leonard, McMinnville; Dr. J. M. Graham, Tullahoma; Dr. W. J. Morrison, Nashville; Dr. A. A. McClanahan, Springfield; Dr. W. C. Shepard, Columbia; Dr. W. B. Spencer, Jackson; Drs. J. L. Mewborn and R. E. Bullington, Memphis; Dr. Southall Dickson, Bolivar; Dr. W. A. Henson, Newburn.

P. D. HOUSTON, *Secretary.*

Lewisburg, March 26, 1896.

THE Alabama Dental Association will hold its next meeting at Hotel Albert, Selma, April 14 to 17, inclusive. The forecasts indicate a splendid meeting, and everything possible will be done from now on to bring about a realization of the same. All practitioners in good standing are very cordially invited to meet with us and participate in the proceedings. The Examining Board will meet at the same time and place, and all who contemplate entering practice in the State should be present and be examined. The law against practicing without license is very clear, and the authorities will receive the hearty support of the profession in its enforcement.

Respectfully,
Montgomery, Ala.

J. H. CROSSLAND, *Secretary.*

THE AMERICAN DENTAL ASSOCIATION.

J. Y. CRAWFORD, Nashville, Tenn., President; James McManus, Hartford, Conn., First Vice President; Thomas Fillebrown, Boston, Mass., Second Vice President; George H. Cushing, Chicago, Ill., Recording Secretary; Emma Eames Chase, St. Louis, Mo., Corresponding Secretary; Henry W. Morgan, Nashville, Tenn., Treasurer. Executive Committee: J. N. Crouse, Chicago; Louis Ottofy, Chicago; and T. H. Jackson, New York City.

The place of next meeting, Saratoga Springs, N. Y., the first Tuesday in August, 1896.

ARTIFICIAL TEETH.

TO those dentists who have for many years used and approved the teeth bearing the stamp of H. D. Justi, it might seem unnecessary to further advertise them; but for the information of the great number of young men who are annually entering the ranks of the dental profession, we wish to call attention to a few points in which we claim a superiority for these teeth over all others.

In Form these will excel both in variety and in close imitation of nature, not only in her ordinary average styles, but also in what might be called her eccentricities of the form and arrangement.

In Color we have succeeded in most nearly securing that bony texture which is so distinct from the porcelain glitter we see in so many artificial teeth, and in the delicate blending of the shade they are eminently satisfactory.

In Strength they have the highest degree possible consistent with maintaining the other qualities required. It would be quite possible to make teeth much stronger by disregarding beauty of form, and making a coarse, thick block; but this ought to be, and doubtless would be, at once rejected by both dentist and patient.

In Adaptation to the alveolar ridge, great care has been taken to meet every requirement, and finally we ask for the product of our factory only a careful criticism and fair trial to convince the profession that we are fully justified in the superiority we claim for it.

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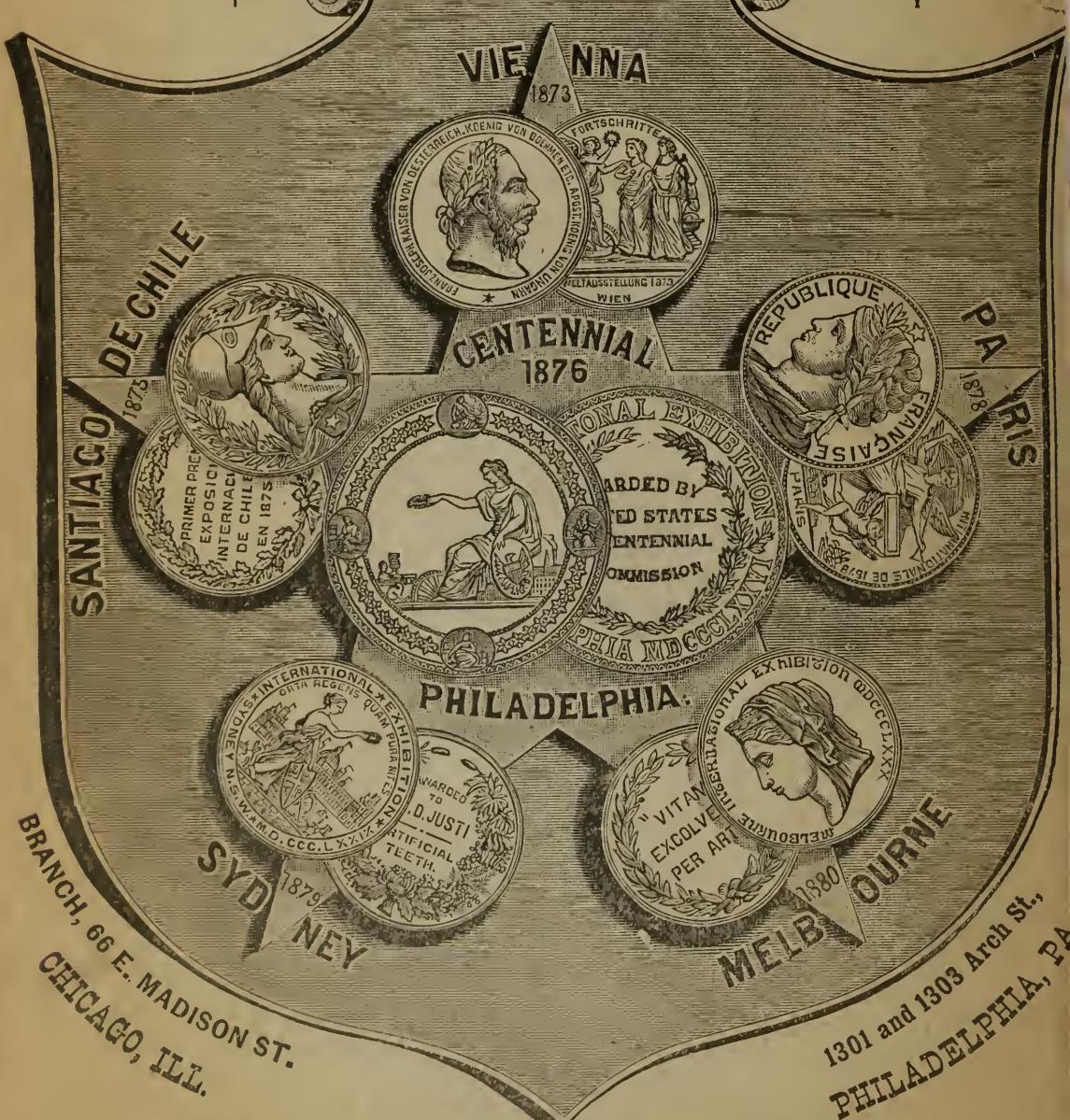
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JULY-SEPT., 1896.

The Dental Headlight,

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Interest of the Profession.

Edited by

HENRY W. MORGAN, M.D., D.D.S.,
AMBROSE MORRISON, M.D.

• • •

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Communications, original contributions intended for publication in THE HEADLIGHT, and exchanges should be directed to Dr. Henry W. Morgan, 211 North High Street; or Dr. Ambrose Morrison, 504 Church Street.

All letters relating to business, containing remittances or advertisements, should be sent to the publishers, MORRISON BROS., 307 North Summer Street, Nashville, Tenn.

Neither the editors nor publishers hold themselves responsible for the opinions, theories, or criticisms of the authors of papers appearing in this journal, or any claims of originality or novelty that may be made by them. Papers will not be published under the head of "Original Communications" that have appeared in other journals.

ATTENTION.—The constant increase of our business demanded larger and more commodious quarters, which we have obtained in our new store, 307 North Summer Street.

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T·H·E

DENTAL HEADLIGHT.

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Original Communications. . . .

PRESIDENT'S ADDRESS, TENNESSEE DENTAL ASSOCIATION, MAY 5, 1896.

BY B. D. BRABSON, D.D.S., KNOXVILLE, TENN.

In July, 1867, the Tennessee State Dental Association first saw the light of day in this city of Nashville, with the following charter members: J. P. Wilson, Nashville; S. J. Cobb, Nashville; T. E. Beach, Franklin; M. McCarty, Pulaski.

The following officers were elected: W. H. Morgan, Nashville, President; J. B. Wasson, Memphis, First Vice President; J. C. Ross, Nashville, Second Vice President; R. Russell, Nashville, Corresponding Secretary; William T. Arrington, Memphis, Recording Secretary. Executive Committee: W. G. Acree, Memphis; W. R. Johnson, Columbia; John Arrington, Jackson.

With such an aggregation of strong and reliable men the success of the Association was doubly assured. Progress and enthusiasm, I am sure, were not lacking to characterize the work of the future; but no doubt many obstacles were met, and our ancestors did not sail on flowery beds of ease.

In judging from the present attitude of this Association I feel warranted in saying that it has ever been keenly alive to the advance of dentistry, and has watched with zealous care the wonderful strides made in the last quarter of a century, and it will always be found interested in such things as will redound to the amelioration of mankind, and to the great future, which I feel sure is in store for the self-sacrificing, hard-working, honorable, and capable practitioner of dentistry.

Gibbon tells us that the resolution of the Roman soldier

grew in its encounter with difficulties, and so must we. Look at the great men of our own free country. What is the record of some of our Presidents? Born in poverty and reared in obscurity, splitting rails, driving the stubborn mules of a tow-boat, and engaging in the hardest manual labor in order to prepare them for the race in which the reward was infinitely greater than a crown of wild olive. It was the approbation of a free Christian people. Progress should be our watchword. I believe that we are so constructed by nature as to be innately opposed to neutrality and a standstill policy. We must progress, or we will surely retrograde; and a spirit of brotherly love toward our fellow-practitioners will largely indicate the progress we attain; for, say what we will, we *are* our brother's keeper, and we should assist him in a fraternal greeting, and show him that we are interested in his welfare and progress.

We should act so that "each to-morrow finds us farther than to-day." The man who expects no adverse winds to strike his sails has a mistaken notion of life's voyage. In every encounter each must be the hero of his own making and take the tide at its flood.

How many in our profession are doing their utmost for the advance of dentistry? If we are not building up, we are tearing down; and in this connection I want to say that we have fallen upon evil times when there is a disposition to court cheap newspaper advertising, and I believe that as an Association we are unalterably opposed to the practice of interviewing the reporters of our popular daily papers to give them a "few dots" for the edification of the dear people. Such a spirit is in contravention of ethics and is akin to the charlatan and quack, who curse the profession that they should honor and revere.

An encouraging sign of the progress of dentistry is seen in the work of some of our colleges. The modern methods and theories find ready helpers in these schools. May we not expect great assistance from the use of electricity in ways yet unknown? The Roentgen discovery will surely work marvels in dentistry, as well as in surgery. As a therapeutic agent electricity is valuable, and by the principle of cataphoresis it has been clearly shown that the exquisite sensitiveness of dentine may be removed.

The well equipped man is able to meet competition whenever and wherever it may be found.

I ever take pride in the thought that the most dexterous manipulation of all dental material may be learned under home influence. It has never been necessary to go abroad to perfect ourselves in the art that we all love. There is in our people an honest endeavor for the purest and best of man's ingenuity, and we are not content to sit with idle hands and see other countries excel in those principles that make strong men. All present inspiration is grasped with an eagerness that characterizes our people as capable and worthy leaders.

The poorer elements of society suffer most from the dishonest dentist. It may be a question whether every city shall have junk shops of dentistry; it is a fact that every city does have them.

The question of revoking diplomas on account of unprofessional conduct has often been discussed. It does seem to me that the right ought to be vested in a college to do this, and when a fellow has by unethical practices lost his diploma compel him to come before the State Board for examination. I think that much good would result.

To those who would create and foster a love for the highest art in dentistry we must commend capacity, an abiding faith, and an everlasting continuity of purpose. These attributes are essentially requisites for success in any avocation. While we younger heroes in the strife struggle for the upper round of the ladder, we are ready to receive such instruction as we can while we sit at the feet of these Gamaliels of dentistry, and learn lessons of experience, which often render us better armed for the conflict that is inevitable.

At this meeting I would suggest a revision of our by-laws and constitution. They are our code, and by them we expect to be governed. Something ought to be done in regard to delinquents. I think that a man should be a member, in good standing, for two or three years before being eligible for office. The man who is so far lost to a sense of appreciation as to fail to recognize as an honor an office in this Association is an ingrate and a boor. Furthermore, the man who flagrantly violates his obligation to obey and honor the laws governing this Association, and accepts an office in this society, and uses that

distinction for base purposes is an unmitigated fraud, and should be rewarded with the contempt of this Association.

Of all the forecasts that can be made to-day regarding the future of dentistry, none can be more reasonable than that greater things are in store than have been dreamed of in our philosophy; and to this country, the fatherland of dentistry, we must look for the new and useful principles and appliances. Upon the young men rests the responsibility of sustaining our prestige and good name, and the sequel will show how well we have fostered the work committed to our care.

The idealistic struggle for an honorable position in any vocation will assuredly result in producing a type of man potent and convincing in his characteristics, stable in all his ways, and one who will assume an important rôle in the councils of his compeers. I congratulate the devotees of dentistry on the auspicious future. I believe that we will soon enter upon an era of prosperity hitherto unknown. I do not sympathize with the idea that a few incompetent fellows are able to demolish the structure that has been builded by the best men in dentistry, though they may cast a stigma on the profession. We would have all practitioners in good and regular standing unite in fixing the destiny of our profession upon a plane above reproach and suspicion.

"Laws are made to protect the good and restrain the bad." If, intuitively, a man is not a gentleman, legislation is needed for such a one. If we cannot make a good man out of a fellow, let us make as good as we can.

In my efforts to enlist the sympathies of our brethren at this time I found some on whom the burden has often fallen heavily, again ready to work for the success of our Association, and have labored assiduously that we might enjoy a season of refreshing communion with each other, and to them the thanks of this Association are due. I have been very much chagrined to find a disposition among some of the younger men to do nothing toward the help of our meeting. This is a lamentable state of affairs, and should not be repeated, as it tends to depreciation in various ways. The man who says that he gets no good from Association work is the man who does no work for the Association. I attribute this seeming negligence not to a lack of interest, but to a lack of confidence in their

ability. Still, all that is expected of any one is to do the best he can, and leave the results where they belong.

At the Southern Dental Association in Atlanta, last November, it was decided that only members should be admitted to clinics. I suggest that we adopt this same rule, for after mature consideration I am led to believe that this plan will greatly improve the work of the Association, especially in increasing the membership and interest in the clinics. Clinicians and essayists should have at least six months' notice, and each one should make a special effort to edify and instruct. I am gratified to note that an important step was taken at the meeting of this Association last July in Knoxville, to educate the children of the public schools in the "care and preservation of the teeth." Let this good work continue, and future generations will rise up and call us blessed.

In corresponding with our members I find an inclination to locate permanently in Nashville. My judgment is that in view of the great strides which I am confident will be made in the near future, our work would be better appreciated and the interests of the Association best subserved by having a permanent home or regular place of meeting. Such things as stereopticon lectures, various uses of electricity, clinics, and a museum could better serve the Association in a regular place of meeting. These few thoughts I leave with you, hoping that each one will consider himself a committee of one to assist in this work, and that all will feel perfectly free and easy to instruct and be instructed; and let us all go to work and make this a profitable and pleasant meeting.

THE SITUATION: A WORD OF ENCOURAGEMENT.*

BY DR. A. R. MELENDY, KNOXVILLE, TENN.

I HAVE been impressed in my intercourse with brother dentists throughout the State by the very gloomy forebodings which many have expressed as to the present condition and future prospects of our profession.

That the discouragers have been abroad is apparent even from the reports of some of our dental societies, and they are a

* Read at the annual meeting of the Tennessee Dental Association, May 1896.

bad set to mix with, for the whole effort of their life is to discourage others, to find unpleasant things and point them out, to discover dangers and tell about them, to look for difficulties and obstacles and proclaim them. If you meet them with buoyant mood, you will not be long in their company before you will find all the buoyancy stealing out of you under the influence of their disheartenment. If you turn to them in your trouble, you will go away feeling that your case is utterly hopeless, and will be ready almost to despair. They never have a glad, cheerful, hopeful word for any one. They find all the shadows in life, and persist in walking in them. They look at little hills of difficulty through lenses of morbid feeling, that make them grow into tall mountains. Thus encompassed with gloom themselves, they make darkness for others, never brightness, wherever they go. Have you met with one of them? I have, and have been made to feel that next month or next year at farthest I should find myself and family on the verge of starvation. Now why is this? After fairly considering the matter, I am constrained to say that there is no good reason for it. True, we as a profession have had to suffer with other people in the protracted stringency of the money market, but not more than others, nor more than our share.

Some dentists in full practice have failed to keep abreast of the times, and, continuing to pursue the same methods in vogue fifteen to thirty years ago, have found their most intelligent patients seeking other and more modern advice and service. Some have felt called upon to fight the quack instead of ignoring him, as they should have done, and in the conflict have had their clothing slightly soiled. Some, and it is very few, may live in towns or cities where the number of dentists is out of proportion to the number of the population. These classes may have some cause for complaint, but the most of them are themselves responsible for their condition. On the whole, there is no just cause for discouragement, but many reasons for feeling encouraged.

1. The standard of excellence in our profession is higher than ever before. Our dental law has done much to bring about this result.

2. The people are becoming more and more enlightened on the subject, and in consequence demand better service.

3. The demand for dental services is rapidly increasing. New branches of work are being opened up every year. The care of the deciduous teeth is growing rapidly and demanding more and more of our attention.

Orthodontia is a branch which we all realize must in the future demand much more of our time than in the past. The treatment of diseases of the oral cavity, especially of the gums, is gradually being assumed by the dentist.

Now add to these new branches the large number of people who have never sought the services of a dentist, but as they advance in civilization are led to care for their teeth, and we have a greatly increased demand for our services, both as to time and skill. All these things and more we have to encourage us, and on the other hand we have the "hard times," the syndicate dentist and advertising quack, and the large number of new graduates entering the profession annually.

1. We should expect to bear our share of the burden of "hard times."

2. The advertising quack and syndicate dentist we may expect to always have with us. I am told, however, by dental drummers that they do not make it pay outside of the large cities.

Look at the other professions.

The law, with its countless horde of little fellows ready to accept a fee from fifty cents up; yet they do not affect to any appreciable degree the business of the better and more competent lawyers.

The medical profession is full of quacks of every variety and degree of skill, yet the honest practitioner continues to thrive; and so you will find these parasites throughout all of the professions. And shall we escape? In the very nature of the case we cannot hope to. But do you realize that the dentist grows in ability and in skill from year to year, as he has opportunity to use and appropriate what he has learned.

To develop into a strictly first-class dentist one must practice in doing the most difficult and skillful operations of which he is capable. Thus we are ever learning by doing and growing by doing.

Now the quack pursues an entirely different course. Speed and cheapness constitute the principal features in his work,

and consequently he does not have the opportunity to improve, and can never reach a high standard of skill as an operator. All things considered, I do not see why we should fear them, or be discouraged because of their flourish of trumpets. To my mind it is plain that the cheap workman must sink lower and lower in ability as a dentist, while those who strive to hold up their work to a high standard of excellence and to honor their profession will rise higher and higher in ability and skill, and the dear people will find it out.

Much unjust criticism of the colleges has been indulged in. It seems to me that the colleges have done all in their power to advance the interests of the profession, for in raising the standard for graduation and in requiring three instead of two years they have greatly lengthened the distance between the citizen and the full-fledged dentist, and to that extent have increased the dignity and honor of the profession. A great majority of the men entering our ranks now do so at so great a cost of time and money that they cannot afford to adopt the ways, methods, and prices of the quack.

Now, gentlemen, the patient and persevering effort of all honest practitioners to educate the people to a high appreciation of their teeth is bearing fruit, and our most cultured people are not only giving the teeth of their families more care, but are demanding of their dentist more careful attention and greater skill in all of his operations, and I believe that every effort on our part as a dental society to instruct the people along this line has proved beneficial. The circular letter sent out last year indorsed by this society I have reason to believe has done much good. I was pleased to learn in talking with one of the teachers in the girls' high school of Knoxville that every morning she writes on the board the question, "Have you brushed your teeth this morning?" and as the scholars come in they make a mark if they have. At roll call if these marks do not correspond with the number present, those who have failed to brush their teeth are required to rise and confess it. This rule has brought about a great improvement not only in the teeth, but in the general habits of neatness. I feel that this letter was a step in the right direction, and that it should be repeated.

If thought practicable, I shall move that this society appoint

a committee to prepare and have published every month or two in the press of the State such articles as would be beneficial and instructive to the public, these articles to go out as by authority of the State Dental Association.

Now, gentlemen, with the great increase in the number of people seeking the service of a dentist, with the continually increasing demand for more careful attention to the children's teeth and for greater skill in all of our operations, with the requirements for graduation in our colleges being kept up to the present high standard, with the new avenues of work opened up and made possible by the new methods of practice and the results of scientific research, with the constantly increasing demand for correcting irregularities, with the people eager to receive instruction from an authentic source and eager to avail themselves of every improved method of treatment of the natural organs or in substituting the artificial—why should we not feel encouraged and with hearty enthusiasm redouble our efforts to save the teeth, thereby preserving the health and beauty of our patients. Why should we not be encouraged to renew our efforts to dignify and honor our profession? Do you know that we are in a measure responsible for the atmosphere in which we live? The thoughts and ideas of those with whom we associate constitute an atmosphere which is either depressing or stimulating. We help to make the atmosphere of our home, our country, our dental society. Just as the footfall on the earth's surface produces an effect which reaches to its very center, so the acts which indicate purpose and character in us exert a widening influence upon our fellows to which we can set no limits. We are living to stimulate or depress by the atmosphere that we help to create. Which shall it be?

Let us live to make to-morrow beautiful, not to stain yesterday with tears of regret and grief; there is a bright and hopeful future before us if we will but see it.

THE USE OF COCAINE FOR THE EXTRACTION OF THE PULP.*

BY U. D. BILLMEYER, D.D.S., CHATTANOOGA, TENN.

THE first step is to adjust the rubber dam and gain access to the exposure. Should the walls of the cavity be sensitive,

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it is not necessary to remove the decay, as this can be done later. Place a few crystals of cocaine on a mixing slab, and grind to powder with a spatula. Mix with it sufficient wood creosote to make a paste of a consistency that will adhere to a fine-pointed instrument. Select any instrument that can conveniently be passed to the exposed pulp, and with it apply the paste freely over and around the exposure. There will invariably be exudation from the pulp or moisture in the cavity sufficient to dissolve the cocaine and leave the solution in just the position that you want it.

The next step in this operation is to inject this cocaine into the pulp. I have tried many ways of doing this, but have finally settled to one method in all cases, and I have a friend to thank for the suggestion. Place a piece of beeswax in and over the cavity in such a way that, by pressing with the finger, gently at first but firmly, on the wax, it will inject the cocaine into the pulp, with usually but a slight twinge of pain, but by gently continuing to push the wax into the cavity, in a few moments pain will entirely cease and you can press as hard as you desire on the exposed pulp, and there will be no sensation whatever. The manipulation in this part of the operation must be somewhat varied, as the peculiarities of your patients vary. A very nervous patient must be handled carefully at first, but you can be sure of your position and depend upon the results that will follow; and the nervous patient, strung up to the highest tension, will finally settle down, become perfectly relaxed, and will have gained such complete confidence that you can operate at your will. It is a common occurrence to remove the pulp, fill the roots and tooth, and the patient remain perfectly ignorant of what has been done until all is completed. In removing the wax the pulp chamber can be opened up and the decay removed in the ordinary way, and usually the pulp will be thoroughly deadened. In case it is not, the same treatment can be repeated, or if the nerve in the root canals should still be sensitive, the cocaine in the same form can be pumped in with the broach, wound with cotton. The remainder of the contents can be easily removed. However, it may be well to state that the pulp is sometimes very tender and cannot be easily removed bodily, and if much inflammation existed, profuse hemorrhage will often follow,

especially if the pulp is broken up instead of being severed at the apex. This can be effectually checked by using sulphuric acid. Following the acid with the usual treatment, saturated solution of bicarbonate of soda very effectually forces out the debris left in the canals, leaving them white and clean, and ready to fill with whatever material the case may indicate. I always feel safer and more certain of the final result by filling the roots immediately, thereby cutting off any possibility of after infection. I will not attempt to theorize at all, but simply present the practical facts as I have worked them out in my everyday practice. I do not hesitate to use this method in any case that presents itself in which the removal of the pulp is indicated. As we have this operation to perform upon the normal pulp as well as when it is in the various stages of inflammation, and with patients presenting an equal variety of conditions, we must use our best judgment and skill to meet and combat these various conditions. A little practice and experience on this line will enable us to overcome any difficulties that may be found in our way. I present this short paper, hoping that it may be the means of bringing out some better points in this line of treatment, and I predict that the time is not far distant when the arsenical preparations, or any other of a like nature, will be banished from our medicine cases.

**SUGGESTIONS AS TO THE PROPER ENFORCEMENT OF OUR STATE
DENTAL LAWS.***

BY DR. F. A. SHOTWELL, ROGERSVILLE, TENN.

Mr. President, and Members of the Tennessee Dental Association: While the subject assigned me is entirely outside the usual line of discussion, it is nevertheless an important one to the welfare of the general public, as well as to the members of our Association. And while here discussing the utility and virtue of the various materials, appliances, and methods pertaining to the practice of dentistry and interchanging those valuable ideas which have been formed through years of patient and

* Read at the annual meeting of the Tennessee Dental Association, May 7, 1896.

intelligent application to our work, it may not be amiss to devote a few moments to the consideration of the "Proper Enforcement of Our State Dental Law," which was enacted, we believe, for the protection of the people of the State as a whole, and not, as sometimes claimed, for the benefit of a few town dentists.

After a careful comparison of our State dental law with the dental laws of other States, it will be readily ascertained that while the former is imperfect in many respects, it is yet so far superior to the latter, in the majority of instances, that we should feel much encouraged and seek to obtain in full the benefits to be derived from its proper enforcement. Avoiding equally, as it does, the two extremes of great severity and great laxity, it neither requires all applicants for license, whether graduates of the best dental college or others, to stand an examination by the Board, and pay exorbitant fees, nor yet allows inexperienced persons or unqualified charlatans to impose upon a credulous public. Under its equitable provisions a diploma from a reputable dental college is considered *prima facie* evidence of necessary proficiency. Without such diploma an examination must be held, at reasonable charges, and then, if found satisfactory, the applicant is registered.

But, however perfect in its provisions such law may be, it is useless unless properly enforced; and it is to discuss the best manner of doing this that, if I am favored with your attention, I shall endeavor to make a few suggestions.

As it has been said that "man is as prone to evil as the sparks are to fly upward," it might be added, with much appearance of reason, that he is equally as prone to make mistakes. And a mistaken idea seems to obtain among some members of our Association as to the duties devolving upon the State Board of Examiners. In fact, they would invest that body with such duties as would render necessary a change of name to the "State Board of Prosecutors," and to make them the sole instruments of bringing every offender to the bar of justice. Now, while the members of the Board have individually made every effort to do their full duty in this matter, it is equally the duty of not only every member of the Association, but of every good citizen as well, to aid when necessary

in the enforcement of the laws of the Commonwealth framed for the protection of the public. Under this law the duty of the Board is not to prosecute violators, but to pass upon the qualification of those who seek to enter the profession, and so grant, or refuse to grant, them the license to practice.

A number of letters have been received from members of the Association requesting the Board to prosecute certain offenders who were operating in the neighborhood of the writers. And most of these writers add the caution that their names must under no circumstances be made known as in any way connected with the prosecution, as the offender mentioned was a "desperate and dangerous character." Do these gentlemen believe that this Board is set apart and fully consecrated as martyrs to the cause, and are eagerly awaiting the first opportunity to cast themselves headlong upon their fate? In this connection it may be well to mention that the members of the Board carry no extra life insurance for the purpose of assuming all these risks.

When a man is found who is believed to be violating the State dental law, first ascertain whether or not he is registered. This can be done by referring to the annual supplement to the roll of registration, by writing to any member of the Board, or, where you are ready to begin prosecution at once, by requesting the man to show his certificate and say whether or not he is registered. Then don't write to this Board, or to any one else to do what is clearly your own duty, but prosecute him yourself. Don't take the case before a magistrate, where it would be necessary for you to employ an attorney and where you are much more likely to fail in your purpose. At best, he would only bind the offender over to a distant term of court, and thus give him more time to prepare a defense and endeavor to evade the law. When you have quietly secured the necessary evidence, wait until the Circuit Court is in session, and then have the Attorney General draw a bill of indictment and present it to the grand jury. You will then be brought in to testify against him; and if your evidence has been properly secured, a true bill will certainly be found. It is then the duty of the clerk of the court to issue a warrant without delay for the apprehension of the accused; and if promptly served, as it should be, he must submit or give bond.

for his appearance at the next term of the court, when you will rarely fail to secure a conviction.

These suggestions are made as the result of personal experience, and I hope that, if they serve no better purpose, they may at least be the means of introducing the subject for more thorough and comprehensive discussion, and that we may find and adopt the most effective means of enforcing the State dental law.

THEORY AND PRACTICE.

BY J. H. CROSSLAND, D.D.S., MONTGOMERY, ALA.

In presenting a paper on "Theory and Practice" I am forcibly impressed with the fact that to make it an exhaustive one would be to cover the entire field of dentistry, and will consequently endeavor to give you only a short paper on the subject. As the term "theory" is so often misapplied, reference to its etymology may not be improper. Derived from a Greek word meaning "to see," it means, says Webster, "an exposition of the general principles of any science. The science distinguished from the art. Theory is distinguished from hypothesis thus: Theory is founded on inferences drawn from principles which have been established on independent evidence; an hypothesis is a proposition assumed to account for certain phenomena, and has no other evidence of its truth than that it affords a satisfactory explanation of those phenomena." Hence we sometimes mean hypothesis when we say theory.

As I am not experienced in writing papers, I will content myself to give you a report of a case, and will trust to your generosity to call it a paper on "Theory and Practice."

Patient.—A lady, aged, as nearly as could be guessed, twenty-five. Symptoms: Cheek swollen, eye bulged, etc., on left side; breath very offensive. Had been treated for nasal catarrh. About twelve months since had severe aching in first molar, which ceased, however, after repeated applications of oil of cloves and toothache drops bought from a druggist. System badly run down; in fact, her mental condition is not far removed from hysterical. Diagnosis: Abscess discharging into antrum of Highmore. Treatment: Pulp chamber opened and cleansed, but roots and canals found too small to permit proper

drainage. Tooth extracted; pus in profusion. Antrum syringed with three per cent pyrozone, followed by tepid water slightly carbolized. Patient instructed to return three days later, and in the meantime to use Epsom salts in small doses, or other laxative.

Second Sitting.—Swelling and soreness disappeared almost entirely. She feels "so much better" than for weeks past. She has slept soundly, and her appetite is considerably improved. A smooth blunt probe is passed into the antrum, and encounters no solid substance, but some pus exudes on its withdrawal. Syringed with pyrozone, followed by tepid carbolized water, care being exercised that only very slight force be applied in making the injections. The patient is instructed to return every third day until further notice, and to spend a considerable part of each day out of doors, taking moderate exercise, and to provide herself with as pure food as possible, avoiding the use of too oily or too highly seasoned dishes.

Third Sitting.—The swelling and soreness have both disappeared. There is still some pus, but the patient is quite comfortable and improving generally, so we turn our attention to the teeth, which we find in a sad plight; only a few molars and bicuspids have escaped the mercenary grasp of the "painless" extractor and cheap dentist(?), and the lonely few that remain, relies and ruins of a once beautiful masticatory armament, occlude so poorly and have lost so much of their substances that scarcely an inch of masticating surface remains, while the superior incisors have, with a single exception, yielded their pearly crowns to that arch enemy of their kind, caries. On every hand are great funneled chambers and canals, where ghoulish microbes have their loathsome abodes and propagate their evil species. The aroma which greets the olfactories savors not of the spicy shores of Araby, the blest.

With broaches, drills, and fiber they are dragged forth. Their cremated bodies cling in countless millions to the silv'n probe, or they perish in agony as the powerful antiseptic engulfs them. In due time the fiber, packed to the very apex, remains for days, even weeks, and, withdrawn, brings with it no suggestion of putrefaction, no odor, save that of the medicinal agent incorporated in its substance.

Dark, gloomy caverns have lost their darkness, and bright ivory walls and smooth, pearly margins in their coral settings contrast not meanly with the somber, jagged, and unsightly fragments with turgid, bleeding gingival tissue falling, like some helpless vine, its tendrils severed, into them.

Crowns of royal metal, made aesthetic by incorruptible facings, with cement made fast, now bury their smooth and shapely margins beneath a healthy tissue, and the uninitiated admire, in blissful ignorance, their symmetrical forms and lifelike textures. Bridges of like construction and material span lonely spaces, an indestructible metal fills once dismal cavities, rounding out wasted forms, and, lapping over beveled margins, resists the return of the enemy.

As this work of restoration has progressed the antral trouble has not been neglected, and now even detergent treatment has been discontinued and the sinus allowed to heal.

With many and careful instructions in the use of the silk, the mouth mirror, the syringe and the brush, our patient is now dismissed, and as spring has passed and sultry summer approaches she adopts our advice and spends the heated term where the air is purer and more rarefied and the breezes more refreshing and invigorating.

She returns in the early autumn, and delays not long her semi-annual visit to her dentist, having firmly resolved to carry out his instructions to the letter. He is literally thrilled with joy as he beholds the transformation which his work has wrought. To the pale, shrunken cheek the damask and the dimple have returned; the languid eye its pristine brightness has regained, and the form its wonted symmetry and elasticity. The star of hope shines once more o'er the pathway of a gladsome life.

As the door closes behind this, physically speaking, "new woman" her weary benefactor mutters to himself: "Asepsis, occlusion." No mean motto, I think, to observe in our daily efforts to conquer the deadly enemy of our charges.

Selections.

TWO DEATHS FROM CHLOROFORM IN CANADA.

ON the 4th ult. Dr. Walton held an inquest touching the death of Rose de la Mare (13), the eldest of two daughters of Rev. S. T. de la Mare, superintendent minister of the Wesleyan Circuit, Northallerton. As far as can be gathered, Dr. Tweedy had been attending deceased for the last six or seven weeks for a complication of diseases. She had been suffering excessively from neuralgia, which had rendered her nights sleepless. One side of her mouth was ulcerated with the bad teeth, and it was deemed necessary to extract a number of them to give relief. Accordingly the doctor called in Mr. Sugden, dentist, and taking into consideration her condition, it was thought necessary to administer chloroform. Deceased was cheerful, and her pulse was beating strongly. One drachm of chloroform was given. After one tooth had been extracted deceased gave a little start and shout, indicating evidently that the chloroform had not taken sufficient effect. The dentist was then proceeding to extract the second tooth, when the patient changed color, becoming a deathlike hue. The pulse giving cause for apprehension, Dr. Walton was called in, and the battery and other restorative measures used, but without avail. Dr. Walton said that he should not give evidence in his own court, but he could corroborate the evidence of Dr. Tweedy as to doing all they could to revive deceased. In answer to Mr. W. Reed, a juryman, Dr. Tweedy said that he did not consider in this case that it would have been better to have administered ether, and he was of opinion that deceased was more than equal to the small dose of chloroform. The jury returned a verdict that deceased died owing to the failure of the heart's action under the administration of chloroform.

On February 21 an inquest was held on Ernest Henry Tinsley (15), son of Mr. W. H. Tinsley, solicitor, Dudley, who died whilst under the influence of chloroform. The mother of deceased said that the lad desired to join the navy, in order to do which it was requisite that he should submit himself to dental treat-

ment. She took him to see Mr. Morris, Castle Street, who advised him to have eleven teeth extracted. Dr. Bellingham said that he carefully examined deceased's heart and chest, and came to the conclusion that he was justified in administering chloroform. Insensibility having been produced, one tooth was extracted, when deceased showed signs of recovery, and witness again administered the chloroform. When the operation was completed Tinsley appeared to be in a condition usual with chloroform patients, but soon after his pulse ceased, and he expired. Dr. Messiter, who had made a *post-mortem*, said that he should have been prepared, if the case had been under his treatment, to have administered chloroform. He considered that the anaesthetic was properly administered. The jury, in returning a verdict of "death from misadventure," expressed the opinion that no blame could be attached either to the doctor or to the dentist.—*Dental Record*.

ROENTGEN'S DISCOVERY: HOW IT CAN BE APPLIED TO MEDICINE AND SURGERY.

THE *New York Medical News* prints the following article by Henry W. Cattell, M.D., Demonstrator of Morbid Anatomy in the University of Pennsylvania, explaining the application of Roentgen's discovery to medical science:

"Roentgen's weird and wonderful discovery is destined to enrich medicine with possibly the most valuable diagnostic process which recent years have witnessed. Within a month from Roentgen's first announcement sufficient experiments have confirmed the value of his discovery and have pointed toward applications which, though yet unachieved, only await a development of details similar to that which converted Daguerre's slow, faint, and uncertain method into the instantaneous and brilliant photography of the present day.

"In brief, Roentgen has discovered that the electrical current passed through a Ruhmkorff coil and thence to a Crookes vacuum tube develops from the cathode an invisible form of energy having the double property of penetrating certain ordinarily opaque substances and of affecting an ordinary photographic plate. Flesh, for instance, is translucent to these

rays, and bone and metal, glass and graphite are comparatively impervious. On this difference in penetrability depend the effects which are permanently recorded by ordinary photographic plates. Perfect clearness of definition has not yet been attained. It will be convenient to coin the words 'skiagraph' or 'skotograph' to characterize pictures produced by the X rays and to indicate at once their relationship to and their distinction from photographs.

"The surgical imagination can pleasurabley lose itself in devising endless applications of this wonderful process. If it becomes possible to drive these mysterious rays through the entire body as clearly as they now penetrate the hand, the realm of utility will be practically boundless. It is stated that stone in the kidney has already been determined, and the opacity of glass has led to the detection of small pieces adherent to bone after accident. The similar opacity of lead may render the probe useless in gunshot wounds, except in rare cases, as when the bullet is buried in bone. A new means of distinguishing luxations from fractures is now added to the long list at our command. Obstetricians will readily perceive the immense value of seeing the fetus in utero after ossification of its bones has occurred. The representation of deformed pelvis in the living subject, of spondylolisthesis, of calcareous infiltration of various parts, such as arteries, and of exostosis—all this opens up a tempting and promising field for practical research.

"Incredible as all this may seem, the skiographs (or pictures) photographically reproduced show a number of objects selected at random.

"The easy application of Roentgen's method of taking a picture on a sensitized plate renders its use at once possible in hospitals. The entire cost of such an apparatus need not exceed \$50, and the expenditure of this amount will shortly be materially diminished. Doubtless the scientific and commercial ingenuity now being focused on this process will soon produce outfits at once simple, convenient, and portable, and it is safe to say that most practitioners will then provide themselves with the means of seeing into the mysterious recesses of the body now accessible only by means of the knife."

Extracts.

THE STUDY OF CHEMISTRY.

VERY few realize the immense practical value of a good working knowledge of chemistry, and master it to a degree that makes its use possible; but the number of these is so small a fraction of the professional body that when the results of their special studies in this field are published for the benefit of their professional colleagues they are regarded almost as speaking in an unknown tongue. The practical results of their work are seized upon with avidity and applied in a purely empirical way, without any conception, or at least but a meager one, of the general scientific principles governing their application and vital to their successful operation.

That a knowledge of chemistry is as essential to the practice of medicine in all of its branches, including dentistry, as a knowledge of the multiplication table is to all the mathematical operations of life, is always frankly admitted when the matter is so stated. Yet how many practitioners make any such use of chemistry in their work?

Chemistry, upon which, more than any other factor, an intelligent, rational practice of dentistry depends, more nearly measures up to the definition of an exact science than any of the other medical or dental fundamentals. Its phenomena of cause and effect are founded in mathematical relationships, and its results are exact and definite.

As viewed in their relation to the phenomena of vital processes these chemical phenomena are complex, it is true; but they are nevertheless precise, and a clear mental grasp of the laws pertaining to the more simple chemical changes in matter furnishes the only means by which we can hope to understand the more intricate processes concerned in vital phenomena. The further investigation proceeds, the more clearly it is shown that all changes in the composition of matter, from the very simplest to the complex alterations which are included in the life cycle of cellular nutrition, take place in accordance with chemical laws. For this reason the study of chemistry is one

which has a constantly increasing interest and importance. The whole subject of bacterial action and the combating of bacterial influence by disinfection resolves itself finally into a problem in chemistry; there is no factor which directly affects human life which is not in some degree related to chemistry. These facts are merely alluded to in a general way to emphasize the great importance of the subject, though such emphasis may perhaps be superfluous, as the truth of it is always freely admitted even by those who make no claim to chemical knowledge.

In medicine the empirical method has so largely dominated its department of therapeutics that the necessity for an intimate knowledge of chemistry has been to a large extent ignored in practice, and its application to the testing of the composition of the animal fluids, etc., for purposes of diagnosis, has been relegated to the trained specialist, so that the practitioner has in this way been relieved of embarrassment upon the score of his ignorance of the subject. The physician may by various makeshifts manage to overcome the obstacles which his lack of knowledge of chemistry gives rise to, and so also may the dentist; but the conditions incident to dental practice are distinct and peculiar, and such that a want of chemical knowledge is a more serious handicap, in some respects, to him than to his medical confrère.

We do not write a prescription for the cure of a diseased tooth or for the replacement of lost teeth. We treat the case mechanically, as well as therapeutically, and both of these include a consideration and knowledge of the chemical relationships involved; for in whatever way we deal with the relations of matter we have to do with its composition, which is the absolute domain of chemistry. The adaptations of dental instruments to their manifold uses is a question of their composition as well as of their form; hence the problem of their chemical constitution is one of first importance. The physical properties of all our filling materials is directly a question of their composition. The purity of gold is a measure of its working quality, and the word "purity" in this connection at once implies a question as to its composition with some other substance. The whole line of plastic fillings are a direct result

of, in most cases, long and careful chemical research; and there is scarcely another problem in dentistry which presents a greater complexity, or one of more intrinsic interest and importance to the dentist, than the variations in working qualities and physical conditions resulting from chemical differences in the zinc phosphate cements. The chemical relationships involved in every dental procedure, from the application of the rubber dam to the collection of the fee for the operation, are more or less direct. There is no department of dental practice where the need for chemical knowledge does not in some way assert itself.

There is one branch of dental therapeutics in particular in which the application of chemical principles is more commonly ignored than it should be—viz, in the treatment of pulp canals. In this department of dental therapeutics the problems presented are problems of chemistry pure and simple.

The sterilization of infected dentine, the removal of organic débris in the tubular structure, the bleaching of the teeth, all depend upon chemical processes which, unless intelligently carried out, result in failure, or even the production of a worse condition than originally existed.

A fair knowledge does not mean that the dentist should be also a skilled chemist; but it does mean that in his study of chemistry he should realize that it has an importance to him at least the equal of any other department of his knowledge, and that he pursues it not for the purpose of gaining a diploma, but because it will be a tower of strength to him in his life work.

There is no doubt that much of the lack of interest in chemistry among dental students grows out of the fact that the science is often taught to them as pure science, and not as a special department of their practical work; and on this point there is room for improvement in many instances by selecting teachers of chemistry to dental students who are themselves dentists, or who have an intimate knowledge of the chemical needs of the dentist. The subject itself has no lack of interest when correctly and intelligently taught. It is perhaps not possible that the whole cause of the meager training of physicians and dentists in this important subject can be correctly

formulated, but that a revival of interest in the matter is sorely needed cannot be doubted. It is a matter of profound regret, not to say discouragement, that in the great representative associations of this country, when from year to year the subject of dental chemistry is called up, the section has no report to make, or only an occasional paper is presented, which is read to deaf ears and elicits no discussion because it is not understood.

The field is crying for cultivation, and should not be permitted to lie fallow as it has in the past.—*Extracts from Dental Cosmos.*

DENTISTRY IN JAPAN.

JAPAN is regarded as one of the most—if not the most—progressive nations of the East. While this is true of almost everything else, it has not generally been known that dentistry has received much attention; but they have not been idle in respect to dentistry, as is shown by the fact that they have two dental journals, a large dental society, and a dental college. The *Shikagakukai Journal* is the organ of the dental society, and publishes the proceedings of that body in full. This journal was established about six years ago, and each number contains about one hundred pages.

The other, the *Shikwa-igaku-sodan*, is a medical journal devoted to the investigation of dental science.

The first number of this was issued in October, 1895. It is the organ of, and is published by, the Takayama Dental College, in Tokio. It contains one hundred and twenty pages, and is published quarterly.

The dental society was organized in November, 1890. The objects of the society are the improvement of the profession and the interchange of dental knowledge.

The meetings are held twice a month, when the members deliver speeches, open debate, or answer questions on professional matters; and all these transactions are published in the monthly journal, which is distributed to the members. The total number of members is five hundred and twenty. They are composed of the following: 1. Those who have passed the dental surgery public examination; of this class of mem-

bers there are two hundred and eighty-one. 2. The graduates of foreign dental colleges who are now actually engaged in the practice of the profession. 3. Those who have certificates for the profession given from the government on account of their practice in the Japanese system of dentistry. 4. The students of the art.

The college was founded in 1890. It aims to promote the cause of dentistry by treating everything in regard to it, practical as well as theoretical.

It is remarkable that all this should have been done within the last six years. All the agencies for development and growth have been put into active operation within that time. Our dental associations must bestir themselves or be outstripped by our Japanese friends.—*Dental Register.*

THE WALKER PHYSIOLOGICAL ARTICULATOR.

THE articulator constructed with the adjustable angle, with set screws to secure it and gauges to register the degree of the angle found in individual cases, which sometimes varies even in the two sides of the same face, with a further modification enabling the correction of a "wrong bite," constitutes what we have called the "Walker Physiological Articulator," because it is not only automatically, but also physiologically—that is, functionally—correct throughout.

Seeking the cause of the peculiar features in the articulation of models of the natural teeth, in the movements described by the lower jaw of the reconstructed articulator, led to the discovery of the downward as well as the "forward" movement of the condyle in the antero and lateral excursions of the mandible, and also in opening the mouth; which, so far as he has been able to ascertain, has hitherto escaped observation, or perhaps not been deemed of sufficient importance to be placed on record in the literature of human anatomy. Its practical importance to the dental specialist has been indicated.

To reproduce with artificial teeth the articulation of the natural teeth, to give the grinding and biting functions to artificial dentures, instead of the usual up and down mashing action of full dentures with nearly cuspless teeth, led to the minute study of the cusps of the human teeth, both in the

mouth and from models and their interarticulation. This led to the discovery of what might be called the law of the cusps, the variation in the distance from the base of the sulcus to the point of the cusp from the main lower cusps of the second bicuspid increasing distally in the superior lingual cusps and the inferior buccal cusps, conversely decreasing distally in the superior buccal cusps and the inferior lingual cusps.

This is clearly seen by placing the model of as perfect a set of natural teeth as can be obtained, cusps downward, on a clear slab of glass, bringing the successive pairs of teeth under observation to the edge of the glass, where the relative height of the cusps will, as a rule, be found as stated.—*Dr. W. E. Walker, in Dental Register.*

ROYAL TEETH.

It is hardly a pleasant omen for England's future king, the baby Prince Edward of York, that the first appointment officially made to the household of his Royal Highness should be a dentist. Yet such is the case. The little fellow is having a good deal of trouble with his teething, and accordingly one of the latest issues of the *Government Gazette* announces the appointment of a clever young dentist as "dental surgeon in ordinary to his Royal Highness, Prince Edward of York." In course of time he will be provided, through the columns of the official gazette, with a governor, a controller, equerries, lords and gentlemen in waiting, grooms of the stole, and chaplains, besides physicians and private secretaries. But the dignitary whose appointment will outstrip all others in priority, if not in importance and rank, is that of the young dentist. Teeth are becoming more and more an important consideration in the reigning families of Europe. Thus the royal house of Sweden keeps a dentist busy all the time, owing to the fact of all their teeth being bad, while the molars of the reigning house of Spain are excruciatingly bad, Don Carlos in particular having been a perfect martyr with his teeth till he had them replaced by artificial grinders. In fact, there is not a single royal house in Europe that can boast of good teeth, and for this reason dentists play so important a rôle in their existence that it is difficult to realize that a century ago even royal teeth were attended to by barbers.—*Chicago Record.*

DOSAGE EXTRAORDINARY.

WHEN Chunee, the celebrated Indian elephant, fell sick, it was decided that he was suffering from constipation, and, after thirty-two hours of coaxing, he was induced to swallow his first dose, which consisted of 24 pounds of salts, 24 pounds of treacle, 6 drachms of calomel, $1\frac{1}{2}$ drachms of tartar emetic, 6 ounces of powdered gamboge, and a bottle of croton oil. This produced no more appreciable results than an ordinary bun would have done. Six pounds of beef marrow with 4 drachms of calomel was then administered, but absolutely without result; and Chunee became so violent that it was decided to destroy him. But all attempts to get him to take the dose, consisting of 40 drachms of arsenic, with $\frac{1}{2}$ drachm of corrosive sublimate and a lot of strychnine, were unavailing; and the aid of expert marksmen and finally of the military had to be called before he could be disposed of. It took 260 rifle balls to kill him. And behold! at the autopsy it was found that Chunee had been driven mad with a toothache. One of his enormous tusks was extensively decayed, and the diseased tooth, a specimen of *mal aux dents* on a very large scale, is preserved with the skeleton of the beast at the South Kensington Museum.

A NOTE ON CAPPING A TOOTH PULP.

IT is often troublesome to cap a pulp with oxyphosphate of zinc, on account of that material sticking to the instruments used to convey it to the parts desired to be covered without spreading it over the whole of the cavity. By the use of the following method the troublesome part can be avoided: Take a piece of clean writing paper of the proper size, and on the paper place a sufficient quantity of the cement, soft or hard, as the case requires; having taken hold of the corner of the paper with the pliers before the cement was placed on the paper, carry the paper and cement to the parts to be capped, pass a burnishing instrument against the paper, and burnish the capping to its place. If it is desired to get the benefit of the sticking qualities of the cement to assist in holding the filling in the cavity, put cement on both sides of the paper before placing it in position.

The same method can be used with the paper and chloro-percha.

Not only does the paper act as a convenient carrier, but it is a splendid nonconductor, superior to almost everything used for that purpose.—*Dr. C. R. Taylor, in Office and Laboratory.*

RACIAL LONGEVITY AND DISEASE LIABILITY.

1. The colored race is shorter lived than the white, and has a very high infantile death rate; it is especially liable to tuberculosis and pneumonia, and less liable than the white race to malaria, yellow fever, and cancer.

2. The Irish race has a rather low death rate among its young children, but a very high one among adults, due to a considerable extent to the effects of tuberculosis, pneumonia, and alcoholism.

3. The Germans appear to be particularly liable to disorders of the digestive organs and to cancer.

4. The Jews have a low death rate and a more than average longevity; they are less affected than other races by consumption, pneumonia, and alcoholism, but are especially liable to diabetes, locomotor ataxy, and certain other diseases of the nervous system.—*Dr. J. S. Billings, in Medical Record.*

LACTIC ACID PREFERRED.

A good many years ago I introduced lactic acid, for I found it to be an excellent absorber of lime, and it did not act on the soft tissues. Sulphuric acid acts alike on the soft and hard tissues, the healthy as well as the diseased. Lactic acid has this superiority over sulphuric acid, that it does not act on the soft tissues except to stimulate. I use it not only when I want to dissolve for necrosed bone, but also as a solvent of tartar in pyorrhœa. I found in that operation that its effect on the soft tissue is to stimulate granulations and reunite the gum tissue with the tooth, something that sulphuric acid cannot do. I think that in the course of a few years sulphuric acid will pass out of the sphere of the stomatologist.—*Dr. Younger, in Items.*

Editorial.

"IMPROPER CREDIT."

UNDER this heading Editor L. P. Bethel gives another chapter of the methods of the management of the *Items of Interest*. Brother Welch must look to his laurels or suffer the consequences of what the secular press would denominate "editorial piracy." Certainly due credit should always follow the use of matter taken from any source.

THE SOUTHERN DENTAL ASSOCIATION.

As indicated in our last issue, the Executive Committee has changed the place and time of holding the next meeting to Asheville, N. C., Tuesday, July 28. There is no more beautiful spot in all this land—fine hotels, reasonable boarding places, bracing air, beautiful scenery, and a delightful retreat in hot weather. These conditions should attract a large crowd.

The small attendance at Atlanta last year was not at all encouraging, and the change of time from the fall to the summer season has been to meet the desire of those who can best afford to be out of their offices at this time of the year. Every dentist requires rest and recreation. The bracing, pure mountain air of Asheville is just what is needed, and a few days there will equal a much longer stay at most any place that might have been chosen. Let the attendance be a full one.

THE TENNESSEE DENTAL ASSOCIATION.

THE meeting of this Association, held in Nashville, May 5 to 9, was attended by about seventy-five dentists from different parts of the State, and, taken as a whole, was a decided success. Elsewhere will be found an account of the work accomplished and papers presented.

The absence of many who should be active spirits in such gatherings is deplored. The inestimable value of Association work is a recognized and indisputable fact, yet in a

State having nearly five hundred registered dentists it is to be deplored that less than 20 per cent of them can be induced to attend a State society. It is an admitted fact that those who are willing to make the sacrifice are those who represent the wide-awake, progressive element of the profession. The presence of many young men, college graduates, was commented upon. The next meeting will be held at Lookout Mountain in July, 1897. Will you attend?

HIGHLY FAVORED NASHVILLE.

REMARKABLE IMMUNITY FROM STORMS AND DISEASE.

WE deem it worthy of more than ordinary interest to emphasize the extraordinary immunity which Nashville enjoys from the visitation of cyclones, blizzards, and electrical storms with which so many less favored cities have recently been afflicted. Elsewhere the destruction of property and the loss of valuable human lives has been truly appalling. Any city which, by reason of its situation, is protected from the fury of the elements is, in the light of our present knowledge, to be greatly desired. If our information be correct, and we have taken particular pains to inquire, there has never been a death occasioned by storm within the corporate limits of Nashville. Although a "city set upon a hill," possessing an altitude of five hundred feet above the sea level, yet it is in the center of that remarkable depression known as the "Great Central Basin," being almost completely surrounded by an elevated ridge from three hundred to five hundred feet higher than the city—the Highland Rim, which forms a natural break-wind or bulwark against gathering storms. Nashville is thus snugly ensconced at the bottom of the Central Basin, and by virtue of its location and topographical environment perfectly protected from the fury of the elements, and, like a land-locked harbor, may be regarded as "a haven of safety."

Notwithstanding the comparatively low elevation of Nashville, when considered with reference to the Highland Rim, the surface of the Central Basin, in which it is located, is by no means flat, but consists of a fertile, beautifully undulating region traversed by the Cumberland River, a deep, swift-running stream, whose numerous tributaries thoroughly drain the entire region, and constitute the finest system of natural sewerage imaginable. We claim that Nashville is one of the healthiest cities of the Union, enjoying a

most salubrious climate, intermediate to the rigors of the North and West and the enervating heat of more Southern latitudes. The official published death rate is not to be taken as a criterion, for if we eliminate the colored population, we find that the mortality of the whites is only 14 per 1,000, whereas that of both races is 34 per 1,000. Nashville has a large negro population. The average African regards it as his "paradise," and hence they flock to this city in large numbers, where vice, disease, voodooism, and almost total neglect of hygiene and proper sanitation soon play havoc with the race.

The colored people are also lacking in constitutional vigor, and more readily succumb to certain maladies than their white brethren. They are specially predisposed to tuberculosis and scrofulous diseases; their bones are massive, but spongy, lacking in strength and density; the brain and nervous system generally does not attain that high degree of development characteristic of the Caucasian race. Contrary to the popular idea, the negro does not, as a rule, possess a good denture. We have the authority of an eminent dentist for this statement, who claims that in a practice of over half a century he has not observed an adult African with a perfect set of teeth. It is true that the "shining ivory of the negro" is continually remarked, but this only applies to those teeth exposed to view, whereas decay or incipient caries is always observable in the molars. The incisors and cuspidati are usually white and glistening, but are friable and readily crumble away. The hiatus found between the anterior teeth prevents the accumulation of food and débris, and hence these teeth are usually clean and attractive in appearance. The strumous diathesis universally prevails, and although the negro enjoys comparative immunity from malarial diseases, he readily succumbs when attacked by gastro-intestinal disorders or disease of the lungs and other viscerae.

THE UNITED STATES ARMY MEDICAL MUSEUM AND LIBRARY.

THE thirty-sixth annual meeting of the American Dental Association formally recognized the Army Medical Museum and Library as the National Museum and Library of the dental profession of the United States, and appointed a committee to coöperate with the officer in charge of this institution "in enriching its stores of dental literature and museum specimens."

It is quite unnecessary to enlarge upon the value, to the dental

profession and the general public, of a national collection which would at all times illustrate the past history and present condition of the science and art of dentistry. It should be sufficient, in order to arouse the active interest and elicit the hearty support of every member of the dental profession, to call attention to the fact that the United States Government has established and will permanently maintain such a collection at the national capital in connection with similar collections covering every branch of medicine and surgery. At first this institution was limited to military medical subjects, but later greatly broadened its scope, until now it is practically a medical department of the government, perpetuated under a settled policy, maintained by Congressional appropriations, housed in a large building erected for the purpose, extended to cover the whole field of medicine, and opened to the public—the intellectual property of all professions and classes, the recognized national collection of the medical profession.

The dental section contains a large and choice collection of recent literature, in English and other languages, concerning dentistry, and is being constantly added to by purchase and contributions by publishers and authors.

Never before has the profession had such an opportunity to accumulate, preserve, and exhibit at government expense the evidences of its progress and attainments. It must avail itself of the opportunity, or it will forever stand against the profession as an evidence of a lack of pride and zeal.

The work must be done through individual effort. There is much that can be secured from the Southern States; and the State Associations of Tennessee, Mississippi, South Carolina, and North Carolina have appointed committees to solicit contributions. The appeals of these committees should bring to the Museum a large amount of material. The government is ready to pay express charges on all packages addressed to the United States Army Medical Museum and Library.

Casts, photographs, drawings, skulls showing the progress of dentition, deformities of the teeth, diseases of the maxillaries, etc.—anything illustrating any part of dentistry—will be enhanced in value by being placed here to complete the collection.

THE UNION OF THE SOUTHERN WITH THE AMERICAN DENTAL ASSOCIATION.

APROPOS to the Asheville meeting comes this question again, and we bespeak for it an unprejudiced consideration. The committees should come together and understand what is contemplated and desired. Our views were expressed in the October-December (1895) HEADLIGHT, from which we quote the following:

If, as has been suggested, we have too many associations for the best interest of the profession, and it is possible to accomplish more good by con-

centrating our forces and effecting an organization of a representative character which will do such thorough work as will advance the scientific aspects of dentistry, let us help along in the work, and be not controlled by sentiment or personal wishes in the matter. If each Association must make concessions, sever itself from much of the history of the past, yield in many ways to the spirit of advancement of to-day, and possibly surrender even its identity, let it be done with the recklessness of a schoolboy, without regret, bickering, dissension, or wrangle, but with dignity and order, and in the hope that the new organization may fully accomplish all that is predicted. And then let those who are in a position to give weight, standing, and character bend every energy to build up, by force of moral and intellectual support, a structure which must stamp upon the history of our time the fact that now, if never before, our ranks are filled with conservative and progressive men, who are not dominated by selfishness, self-aggrandizement, or personal ambition.

Go to Asheville with a sincere desire to advance the standing of the Association work and for the uplifting of the profession, but before starting leave sectionalism and prejudice at home.

MARRIAGES.

DR. JAMES HASSAN ALLEN, of Birmingham, Ala., a graduate of the Department of Dentistry, Vanderbilt University, was married on June 17, 1896, to Miss Norma Brown, of Elyton, Ala.

Dr. James William Crawford, of Chicago, Ill., a graduate and Assistant Demonstrator of Operative Dentistry in Vanderbilt University, was married on June 10, 1896, to Miss May Frances A. Wood, of Milwaukee, Wis.

Dr. William T. Arrington, Jr., of Memphis, Tenn., was married on June 18, 1896, to Miss Edna A. Freeman, daughter of Judge and Mrs. W. W. McDowell, of Memphis, Tenn.

BOOK REVIEW.

THE PRINCIPLES AND PRACTICE OF DENTISTRY, including Anatomy, Physiology, Pathology, Therapeutics, Dental Surgery, and Mechanism. By Chapin A. Harris, M.D., D.D.S., late President of the Baltimore Medical College, author of "Dictionary of Medical Terminology and Dental Surgery," thirteenth edition. Revised and edited by Ferdinand J. S. Gorgas, A.M., M.D., D.D.S., author of "Dental Medicine," editor of Harris's "Dictionary of Medical Terminology and Dental Surgery," Professor of the Principles of Dental Science, Dental Surgery, and Prosthetic Dentistry in the University of Maryland. With twelve hundred and fifty illustrations. Philadelphia: P. Blakiston, Son & Co., 1012 Walnut Street, 1896.

In this, the thirteenth, revised edition of this well-known standard text-book, the editor, Dr. F. J. S. Gorgas, has re-written and revised many chapters and has introduced much entirely new matter. Special care and attention have been given to new subjects and approved new methods, making them clear and more valuable by the selection of many excellent new illustrations. The reputation of the author is fully sustained in the manner in which he has discharged his task, and the result is a complete, comprehensive book containing all the up to date American ideas.

Obituaries.

DIED April 19, 1896, Dr. J. H. Kenney, of Paducah, Ky., where he had been honorably engaged in the practice of dentistry for a number of years. The dentists of Paducah accompanied the remains to Louisville, Ky., where the burial occurred.

DEATH OF A VETERAN.

DR. T. E. BEECH, in the seventy-first year of his age, one of the oldest dentists in the State, having practiced his profession for over forty-five years in Franklin, Tenn., died after a brief and painful illness on the 10th of June, 1896. Dr. Beech was one of the founders and a charter member of the Tennessee Dental Association. He loved his calling, and was highly esteemed by his professional brethren and as a citizen. His last days were saddened by the loss of mother, wife, and daughter, who followed each other to the grave in rapid succession. The funeral services were conducted by Rev. P. A. Rodriguez, rector of the Episcopalian Church at Franklin.

DR. P. G. C. HUNT died April 24, 1896, at his home in Indianapolis, Ind., of heart disease, in his sixty-ninth year. Though ill for more than a month, his death was a shock and surprise to his family and friends. Dr. Hunt was one of the foremost men of his time, and as a member of the Clinical Staff of the Ohio College, member of the American and Mississippi Valley Dental Associations, President of the Indiana Board of Dental Examiners, and Dean of the Indiana Dental College, he was always a factor in every movement that was elevating and improving to the profession. While eminently practical—for few men excelled him as an operator—he was an enthusiastic experimentalist, and from a mind well stored with varied experiences he contributed much to dental journals. Dr. Hunt was a thirty-third degree Mason, very prominent in the order, and a valued citizen of Indianapolis. He leaves four children, Mrs. H. A. Crossland, Miss Luella Hunt, Dr. G. E. Hunt, and Mrs. Edward Kingsbury—all of Indianapolis. In his death the profession of America mourn the loss of one of her ablest sons, and the sympathy for the family is both generous and universal.

RESOLUTIONS PASSED BY THE ODONTOLOGICAL SOCIETY
ON THE DEATH OF DR. W. H. DWINELLE.

THE rapid years have gathered one more of the great men of our profession to his final rest. Dr. William H. Dwinelle, whose life we commemorate, and whose death we mourn, was one of the great figures in the early days of our young profession. He was born in Cazenovia, N. Y., where he died at the homestead on February 13, 1896, seventy-six years of age.

Entering the profession at a time when it was struggling for recognition among the learned professions, he brought to it the influence of a remarkable personality, and through his varied attainments, and by his energy and hopeful confidence he helped, as few others did, to place it upon a secure foundation among the learned and liberal professions of the world.

Fitted for the practice of medicine and surgery, he yet saw in the specialty of dentistry a wider field for the exercise of his peculiar genius, and he entered upon his work with boundless enthusiasm.

This is shown by his numerous inventions, his brilliant operations, and his contributions to the professional literature of his time.

It is also warmly attested by the few surviving companions of those early days.

He assisted in the formation of the first dental college, and was instrumental in establishing the *American Journal of Dental Science*, one of the most dignified and influential journals that our profession has produced.

In the oral cavity he performed surgical operations that were the admiration of the general surgeons of the day, and he performed operations upon the teeth that had never been attempted before. Many examples of his work are still in existence, to testify to his remarkable ingenuity and to his unusual skill.

A man of warm heart and generous impulses, he freely gave to all who came. His office was always open, and he was ever ready to show his instruments and his methods to any one who desired to learn.

Having practiced medicine and surgery before he entered the dental profession, he commanded the confidence of phy-

sicians and surgeons, and was thereby able to help, in an unusual degree, to secure recognition for our specialty, and he stood for many years as a bond between the parent profession and its young offspring.

A man of literary tastes and a devoted lover of art in all its forms, he was able to reflect credit upon our profession at a time when such influences were more needed than at present.

A man of tender sensibilities, he was a genial companion, and his wide sympathies and varied talents made him a great favorite among cultured people.

He was a man of so many gifts that he could have been a poet, an actor, an artist, a sculptor, or a *literateur*. This wide range of talent made him always an agreeable friend.

Before the bar he would have been a great advocate; in the medical profession he would have been a great physician or a great surgeon.

He chose to be a great dentist. For this we honor his memory, and we think it fitting that this Society, once presided over by him, should place on record its appreciation of him while living, and its sorrow for his death.

S. G. PERRY, *Chairman*;

A. R. STARR,

WILLIAM JARVIE.

Association Proceedings.

TENNESSEE DENTAL ASSOCIATION.

THE twenty-ninth annual meeting of the Tennessee Dental Association met pursuant to adjournment in Nashville, Tenn., in the Lecture Room of the Department of Dentistry, Vanderbilt University, on the 5th day of May, 1896.

The President, Dr. B. D. Brabson, of Knoxville, called the house to order. The proceedings were opened with an appropriate prayer by Rev. Mr. Cotton, of Nashville.

After the reading and approving of the minutes the President delivered his annual address, which was, upon motion, referred to a Committee of the Whole, and 4 p.m. was the hour appointed for the discussion of the same. Dr. H. W. Morgan was appointed to open the discussion, the President to make the closing remarks.

The following were appointed a Committee on Membership. Drs. T. A. Pope, J. P. McDonald, and J. M. Glenn.

Dr. J. Y. Crawford made the following motion, which was carried: That a committee of three (one from each grand division of the State) be appointed to collect dental specimens, etc., for the National Museum at the expense of this Association.

The hours for holding the meetings of the Association were fixed for 9 a.m. to 1 p.m., and from 2:30 p.m. to adjournment, and such other hours as the Association may designate.

Upon motion, a committee was appointed to examine the clinics, and the clinician required to explain their work, etc.

The applications of Drs. R. B. Bogle and J. T. Meaders were recommended by the Committee on Membership, and they were duly elected as members of this Association.

The following were appointed as a Committee on Necrology: Drs. W. W. Jones, N. C. Leonard, and R. N. Kesterson.

AFTERNOON SESSION.

The following were appointed as a Committee on Clinics: R. R. Freeman, J. P. McDonald, and T. A. Pope.

Dr. P. D. Houston reported a case in practice of pyorrhœa alveolaris, asking counsel, which was discussed by Drs. Freeman, Crawford, Henry W. Morgan, J. M. Glenn, and J. P. Gray.

Dr. George H. Price gave a very interesting and important lecture on the "Dentist's Eyes," for which the President, on behalf of the Association, extended to him their hearty thanks, and the subject was discussed by Dr. W. H. Morgan and passed.

The hour having arrived for the discussion of the President's address, the subject was opened by Dr. W. H. Morgan, who exhorted the profession to go slow in patronizing new theories.

Also discussed by Drs. Gordon White, R. B. Lees, and J. Y. Crawford. The Association adopted resolutions to the effect that a man should be an active member of this Association for three years before he could be eligible to an elective office in the same; also that Dr. J. M. Millen, Second Vice President of the Association, be peremptorily expelled for unprofessional conduct in advertising, and that the Secretary be authorized to notify him of the same.

The following committee was appointed to codify and revise the constitution and by-laws, and report at the next meeting: Drs. H. E. Beach, A. R. Melendy, and J. Y. Crawford. Upon motion, the Secretary was added to the committee.

The time for this Association to hold its meetings was fixed on the first Tuesday in July every year, and a committee was appointed to recommend a place for the meetings to be held for the next five years, which committee reported subsequently, recommending Lookout Mountain; and upon motion, said report was concurred in.

SECOND DAY.

The Association assembled in the clinic room of the Dental Department of Vanderbilt University, and spent the forenoon in witnessing clinical work and a general exchange of ideas.

2:30 P.M.—The Association was called to order by the President, and the minutes of yesterday were read and approved. Dr. A. R. Melendy, of Knoxville, read a paper entitled "Words of Encouragement," which was discussed by Drs. R. B. Lees, Henry W. Morgan, N. C. Leonard, R. R. Freeman, B. D. Brabson, and Dr. Cobb, of Thomasville, Ga. (formerly an active member of this Association), who said that he had been men-

tioned as out of the profession, but he desired to inform us that he was still in it; that thirty-two years ago he read a paper on popular dental education, in Detroit, Mich., whereupon a committee was appointed to get up a Dental Catechism for the purpose of educating the people in dentistry, and continued for some time, much to the interest of the Association. Dr. J. Y. Crawford spoke enthusiastically on the subject, and Dr. Melendy closed the discussion. The paper was passed. Dr. J. P. Gray read a paper on "Temperament in Relation to the Teeth," and Dr. U. D. Billmeyer, being called upon, opened the discussion, which was continued by Dr. R. R. Freeman, who spoke extensively on the subject, claiming that it was one of his favorite themes; also by Drs. R. B. Lees and T. A. Pope. Adjourned.

8 P.M.—The President called the Association to order, and a report was had from Dr. R. R. Freeman, Chairman of the Committee on Clinics, who explained the clinics which were held in the forenoon, a discussion of which was entered into by Drs. J. P. Gray, W. K. Slater, J. Y. Crawford, and others. The Association adjourned.

THIRD DAY.

9 A.M.—The Association met in the clinic room of the Vanderbilt Dental College, and spent the morning session very pleasantly, as well as profitably, in witnessing clinic work and exchanging ideas on various subjects.

AFTERNOON.—The Association was called to order by the President. The subject of the "Dental Protective Association" was introduced by Dr. J. P. Gray, who urged in strong terms its importance to every dentist, and insisted on all dentists becoming members of it. The discussion was continued by Drs. Gordon White, J. Y. Crawford, and Henry W. Morgan.

The Committee on Membership recommended the following applicants, who were duly elected to membership in this Association: Dr. W. P. Menzies, F. A. Sandusky, and J. A. Gholson.

Dr. U. D. Billmeyer read a paper on the "Use of Cocaine in Removing Pulps of Teeth," which was discussed by Drs. J. Y. Crawford, R. R. Freeman, J. P. McDonald, and Henry W. Morgan.

The Treasurer was instructed to pay over to the Board of Dental Examiners 75 per cent of the funds of this Association after all its debts shall have been paid.

Dr. L. G. Noel spoke with regard to an historical sketch of dentistry in Tennessee, and asked the coöperation of all dentists in the State.

Dr. R. B. Lees, Chairman of the Committee on Dental Education and Legislation, made a report which was after some amendments adopted, and is as follows:

REPORT OF THE COMMITTEE ON DENTAL EDUCATION AND LEGISLATION.
To the President and Members of the Tennessee Dental Association.

Gentlemen: Your Committee on Dental Education and Legislation beg leave to report the following:

That we feel that there is room for congratulations for the good that has already been accomplished by the passage of the law regulating the practice of dentistry in 1891. That the large majority of the dentists of this State are in full and hearty accord with the same, as evidenced by the sympathy and support given the State Board of Dental Examiners from the time of its passage up to the present. We feel, however, that a greater effort must be made to uphold the hands of the Board from now on if the purpose of the law is to be accomplished for the good of the people.

Our Board has worked in season and out efficiently to carry out the provisions of the law, and that latterly without compensation; and we feel that we, as individuals and collectively, should speak out in no uncertain way in our support of the same, both by words of sympathy and encouragement, and also by making some provision for them to carry on this work financially.

At our last meeting at Knoxville a committee of competent gentlemen was appointed for the purpose of preparing an address to be distributed among the teachers of this State, calling attention to the necessity of early impressing upon children the importance of care of their teeth, etc.

We are pleased to say that the same was tendered for distribution over the State to Prof. S. G. Gilbreath, Superintendent of Public Instruction, who has heartily consented to supply every teacher in the State with a copy, if furnished

by this Association. Encouraging reports come from over the State of the good results that this address is already doing in waking up the people to a proper realization of the care of the teeth. We therefore respectfully urge this body to furnish the demand for this address whenever and wherever it may be needed. It would not be amiss to elect a committee at this meeting, whose duty it shall be to prepare occasionally papers on subjects of importance to the people, the same to be sent to the various news and religious papers of the State for publication; these papers to be such as will do the greatest good to the greatest number.

The term of pupilage having been changed from two years of five months each in many cases to three years of six, seven, and nine months, and embracing many hitherto untaught studies of the sciences, we have reason to believe that the near future will demonstrate the wisdom of this step.

We respectfully urge that the Association take such action at this meeting as will place itself on record as favoring by the proper authority to deprive the right to practice dentistry to such men as are engaged in open and flagrant violation of the code of ethics.

Dr. R. R. Freeman, Chairman of the Clinical Committee, made a report, which was concurred in. Adjourned.

8 P.M.—The Association was called to order by the President.

The President appointed Drs. J. P. McDonald and T. A. Pope as an Auditing Committee.

Dr. F. A. Shotwell read a paper on the "Enforcement of Our Dental Laws," which was discussed by Dr. J. Y. Crawford, and passed.

The President declared the Association in order for the nomination and election of officers, which resulted as follows: Dr. U. D. Billmeyer, of Chattanooga, President; Dr. N. C. Leonard, of McMinnville, First Vice President; A. R. Melendy, of Knoxville, Second Vice President; Dr. P. D. Houston, of Lewisburg, Recording Secretary; Dr. B. D. Brabson, of Knoxville, Corresponding Secretary; Dr. H. E. Beach, of Clarksville, Treasurer; Drs. S. B. Cook, C. H. Smith, and J. S. Cattell, Executive Committee.

Dr. N. C. Leonard was installed as First Vice President, and the meeting adjourned until the first Tuesday in July, 1897, at Lookout Inn, on Lookout Mountain, at 10 A.M.

P. D. HOUSTON, *Secretary.*

Associations.

SOUTHERN DENTAL ASSOCIATION.

THE Southern Dental Association will hold its annual meeting at Battery Park Hotel, Asheville, N. C., commencing July 28, 1896.

Officers for 1895-96.—President, Dr. John S. Thompson, Atlanta, Ga.; First Vice President, Dr. L. P. Dotterer, Charleston, S. C.; Second Vice President, Dr. W. E. Walker, Pass Christian, Miss.; Third Vice President, Dr. T. C. West, Natchez, Miss.; Corresponding Secretary, Dr. E. P. Beadles, Danville, Va.; Recording Secretary, Dr. S. W. Foster, Atlanta, Ga.; Treasurer, Dr. H. A. Lowrance, Athens, Ga.

Executive Committee.—Dr. W. R. Clifton, Waco, Tex., one year; Dr. Gordon White, Nashville, Tenn., one year; Dr. S. B. Cook, Chattanooga, Tenn., two years; Dr. V. E. Turner, Raleigh, N. C., two years; Dr. W. T. Arrington, Memphis, Tenn., three years; Dr. R. K. Luckey, Holly Springs, Miss., three years.

ARTICLE V.

SECTION 2. It shall be the duty of the Chairman of each committee to correspond with each member of his committee, and others if he may desire, so as to be ready at the proper time to submit his report. In the event that he shall find himself unable to attend the meeting of the Association, he shall forward his report to the Corresponding Secretary, in order that it may be submitted.

Committee of Arrangements.—J. F. Ramsey, Chairman, Asheville, N. C.; M. A. Bland, Charlotte, N. C.; J. F. Griffith, Salisbury, N. C.

Operative Dentistry.—E. L. Hunter, Chairman, Fayetteville, N. C.; S. H. McKee, Americus, Ga.; E. P. Beadles, Danville, Va.; A. P. Johnston, Anderson, S. C.; L. G. Noel, Nashville, Tenn.; W. B. Finney, Baltimore, Md.; G. M. Rousseau, Montgomery, Ala.

Prosthetic Dentistry.—George Eubank, Chairman, Birmingham, Ala.; H. H. Johnson, Macon, Ga.; C. L. Alexander, Char-

lotte, N. C.; J. T. Calvert, Spartanburg, S. C.; J. N. Jones, Jacksonville, Fla.; B. D. Brabson, Knoxville, Tenn.; W. E. Walker, Bay St. Louis, Miss.

Dental Education.—B. Holly Smith, Jr., Chairman, Baltimore, Md.; Henry W. Morgan, Nashville, Tenn.; L. M. Cowardin, Richmond, Va.; V. E. Turner, Raleigh, N. C.; A. Eubank, Birmingham, Ala.; J. Y. Crawford, Nashville, Tenn.; Francis Peabody, Louisville, Ky.

Hygiene.—G. J. Freidericks, Chairman, New Orleans, La.; J. R. Woodley, Norfolk, Va.; B. H. Teague, Aiken, S. C.; C. A. Rominger, Reidsville, N. C.; C. V. Rosser, Atlanta, Ga.; H. E. Beach, Clarksville, Tenn.; M. C. Marshall, St. Louis, Mo.

Pathology and Therapeutics.—Theo Johnston, Chairman, Newberry, S. C.; T. H. Parramore, Hampton, Va.; F. J. S. Gorgas, Baltimore, Md.; R. H. Jones, Salem, N. C.; W. H. Richards, Knoxville, Tenn.; James Chace, Ocala, Fla.; W. R. Clifton, Waco, Tex.

Histology and Microscopy.—Jonathan Taft, Chairman, Cincinnati, O.; George B. Clement, Macon, Miss.; Thomas P. Hinman, Atlanta, Ga.; I. N. Carr, Durham, N. C.; J. C. Oeland, Spartanburg, S. C.; J. G. McCullough, New Orleans, La.; John S. Marshall, 1003 Venetian Building, Chicago, Ill.

Chemistry.—E. C. Kirk, Chairman, Philadelphia, Pa.; H. C. Herring, Concord, N. C.; R. C. Young, Anniston, Ala.; J. Hall Moore, Richmond, Va.; J. R. Thompson, Newberry, S. C.; T. C. West, Natchez, Miss.; W. T. Arrington, Memphis, Tenn.

Literature and Voluntary Essays.—B. H. Catching, Chairman, Atlanta, Ga.; W. W. H. Thackston, Farmville, Va.; Gordon White, Nashville, Tenn.; D. D. Atkinson, Brunswick, Ga.; J. Rollo Knapp, New Orleans, La.; Frank S. Harris, Henderson, N. C.; C. S. Stockton, Newark, N. J.

Publication.—S. W. Foster, Chairman, Atlanta, Ga.; O. H. McDonald, Atlanta, Ga.; C. T. Brockett, Atlanta, Ga.

Appliances and Improvements.—H. J. McKellops, St. Louis, Mo.; Frank Holland, Atlanta, Ga.; G. F. S. Wright, Georgetown, S. C.; S. B. Cook, Chattanooga, Tenn.; S. P. Hilliard, Rocky Mount, N. C.; B. A. Mukenfus, Charleston, S. C.; George S. Staples, Sherman, Tex.

Clinic Committee.—J. W. Durham, Chairman, Wilmington,

N. C., one year; H. S. Colding, Savannah, Ga., two years; R. K. Luckey, Holly Springs, Miss., three years.

NOTICE TO MEMBERS.

Owing to change in time and place of meeting the list of committees is somewhat late, but there is ample time for each committee to have a good report if the respective Chairmen will go immediately to work. A short and active campaign often produces the best results.

Asheville needs no commendation. It is the "Switzerland of America." If you are a lover of nature and wish to see the result of some of her grandest handiwork, do not fail to visit the mountains of Western North Carolina.

Hotels.—Asheville is amply supplied with fine hotels, and the Battery Park will furnish accommodations for the Southern Dental Association. Its appointments are unsurpassed.

Railroads.—The great Southern Railroad carries you to Asheville. Connections can easily be made from all points.

Rates.—A postal card will be sent shortly to each member announcing the railroad rate, though summer excursion rates can be obtained from all points to Asheville.

Yours truly,
Danville, Va.

E. P. BEADLES,
Corresponding Secretary.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE annual meeting of the National Association of Dental Faculties will be held at Saratoga Springs on Saturday, August 1, at 10 A.M. The Executive Committee will meet on Friday, July 31, at 10 A.M. Those having matters to bring before this committee will do well to bear this meeting in mind. The work of this committee is preparatory to that of the general meeting. All communications requiring the attention of the Executive Committee should be sent to the Chairman.

DR. J. TAFT, *Chairman Executive Committee,*
Berkshire Building, Cincinnati, O.;
DR. LOUIS OTTOFY, *Secretary,*
Masonic Temple, Chicago.

THE NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

THE twelfth annual session will be held at Saratoga Springs, N. Y., commencing at 10 A.M., Monday, August 3, and continuing in session during the proceedings of the American Dental Association.

It is earnestly requested that all State and Territorial Boards of Dental Examiners will send delegates.

CHARLES A. MEEKER, *Secretary and Treasurer,*
29 Fulton Street, Newark, N. J.

CIRCULAR LETTER FROM THE COMMITTEE OF THE AMERICAN DENTAL ASSOCIATION ON THE DENTAL SECTION OF THE ARMY MEDICAL MUSEUM.

WAR DEPARTMENT, SURGEON GENERAL'S OFFICE,
UNITED STATES ARMY MEDICAL MUSEUM AND LIBRARY,
Corner Seventh and B Streets, S. W., }

WASHINGTON, D. C., December 10, 1894.

DR. WILLIAMS DONNALLY, 1022 Fourteenth Street, N. W., Washington, D. C.

Dear Sir: Your letter of December 10 is received. The Army and Medical Museum and Library are collections which attempt to cover the whole field of medicine, including dentistry.

The Library contains a large collection of books, journals, and pamphlets relating to dentistry, and an attempt is made to secure all the new publications of value in this branch in all languages. The Museum contains between 400 and 500 specimens of casts of abnormalities and deformities of the jaws and teeth, but it should have at least ten times as many to properly illustrate this subject, and there should also be an extensive series illustrating the effects of various forms of treatment.

The collections are contained in a fireproof building, which is of ample size to permit of their expansion, and it is certain that everything contributed in the way of library or specimens will be properly preserved and exhibited, and duly credited to the donors. The collections are intended for public use and study, and are available for the researches of any one who chooses to come to the building for this purpose.

I have attempted in past years to call the attention of the dental profession to this institution as one which they should endeavor to make complete in all matters relating to the pathology and treatment of diseases of the teeth and jaws, so that it might be considered by them as their national collection of literature, specimens, apparatus, etc., to illustrate the history and conditions of dentistry, just as other sections of the Museum and Library are considered to be their national collec-

tions by the physicians, surgeons, and specialists of the country, and it appears to me that more definite, useful, and permanent results can thus be obtained than are likely to follow from an attempt to create a new museum and library devoted exclusively to matters of interest to the dental profession.

Very respectfully,

JOHN S. BILLINGS.

• *Dept. Surg. Gen'l, U. S. Army, Librarian, S. G. O.*

WAR DEPARTMENT, SURGEON GENERAL'S OFFICE,
UNITED STATES ARMY MEDICAL MUSEUM AND LIBRARY,
Corner Seventh and B Streets, S. W., }

WASHINGTON, D. C., September 20, 1895.

DR. WILLIAMS DONNALLY, 1022 Fourteenth Street, N. W., Washington, D. C.

Dear Sir: I have the honor to acknowledge the receipt of your communication of September 16 inviting attention to the action of the American Dental Association in relation to the Army Medical Museum, as reported in the *Dental Cosmos*, and in reply will say that we shall be most happy to coöperate with your committee with a view to the formation of a collection thoroughly illustrative of all matters pertaining to the subject of dentistry.

Our Museum already contains quite an extensive list of casts of maxillæ illustrating physiological and pathological dentition, presented by Dr. Samuel Sexton, of New York City; also a number of miscellaneous specimens, casts, etc., from various sources, as well as quite a complete anatomical exhibit of the normal development of the teeth.

With regard to the contributions considered desirable, I would suggest casts, photographs, and specimens of anomalous dentition; diseases of the maxillæ and oral cavity; photographs or casts of surgical operations, showing, if possible, the condition of parts before and after operations; photographs of prosthetic apparatus, and all miscellaneous exhibits which may lend an interest to the subject of dentistry. All specimens, casts, etc., should be accurately labeled, and a concise description or history given when possible.

In any matter of detail on this subject we shall be ready at any time to give you advice or suggestion.

Very respectfully,

D. L. HUNTINGTON,

Deputy Surgeon General in Charge.

Dear Doctor: The thirty-sixth annual meeting of the American Dental Association formally recognized the Army Medical Museum and Library as the National Museum and Library of the dental profession of the United States, and appointed the undersigned a committee to coöperate with the officers in charge of this institution "in enriching its stores of dental literature and museum specimens."

It is quite necessary for this committee to enlarge upon the value, to the dental profession and the general public, of a national collection which would at all times illustrate the past history and present condition of the science and art of dentistry. It should be amply sufficient, in order to arouse the active interest and elicit the hearty support of every member of the dental profession, to call attention to the fact that the United States Government has established and will permanently maintain such a collection at the national capital, in connection with similar collections covering every branch of medicine and surgery. At first this institution was limited to military medical subjects, but later greatly broadened its scope until now it is practically a medical department of the government, perpetuated under a settled policy, maintained by Congressional appropriations, housed in a large building erected for the purpose, extended to cover the whole field of medicine, and opened to the public—the intellectual property of all professions and classes, the recognized national collections of the medical profession.

It is visited by over 50,000 persons, and consulted by over 3,000 students, annually.

The Museum contains about 35,000 specimens, of which over 12,000 are pathological.

The Army Medical Library is admittedly, throughout the world, the largest and most complete of its kind in existence. It contains three-fourths of the medical literature of the world and nine-tenths of the medical literature of the past ten years. There is a constant daily addition to its 120,000 bound volumes, 190,000 pamphlets, and 1,200 current periodicals. Its literature is not only greater in volume than the medical literature of either the Library of the British Museum or the National Library of France, but covers a wider field and forms a better practical reference and working collection. Its value

is greatly enhanced by an unequaled index-catalogue of 18,000 pages.

The dental section of this library contains a large and choice collection of the recent literature in English and other languages relating to dentistry, and our effort should be to make this section complete, especially with regard to the rarer publications which disclose the conditions from which modern dentistry developed and reveal the history of the operation of the forces and factors concerned in the evolution of a distinct profession. While most of the current literature is bought, the contributions of publishers and authors would permit the money available for the purchase of their works to be used in other directions equally as essential to the purposes of the institution.

The Army Medical Museum contains but the nucleus of a collection of specimens relating to dentistry, which is as unfortunate as it is strange, since so much of dentistry can be illustrated by models, drawings, photographs, etc. It cannot be said that the dental profession is lacking in zeal for its advancement, but it must be confessed that it has too long failed to utilize this opportunity to accumulate, preserve and exhibit, at Government expense, the evidence of its progress and attainments. Many thousands form their estimates of the value of the attainments of the various branches of medicine and surgery by comparing here their exhibited specimens. For this reason, as well as for the educational advancement of the dental profession, we should make this collection the greatest object lesson in the world.

This institution could easily be made of great advantage to the dental colleges as a "clearing house" for the exchange of duplicate literature, and of objects, drawings, casts, etc., used in teaching. It would not be an extension of its purposes to illustrate here the methods, apparatus, and appliances used in college training.

Without attempting to detail the kind of specimens needed, it is safe to say that anything illustrative of any part of the subject of dentistry, or which would, in connection with other specimens, throw light on the etiology, pathology, or treatment of the diseases and deformities of the teeth, jaws, etc., would attain a greatly enhanced value by being placed here as parts of a complete collection.

Every specimen contributed should bear a correct label, a concise history, the name of the contributor, and be addressed, prepaid, to the Army Medical Museum and Library, Washington, D. C.

Never was there such opportunity so freely offered a profession to demonstrate its value, to acquire a higher rank among the learned callings, to acquaint the professions and the general public with its achievements, and to secure the preservation and exhibition of all things pertaining to it of present or future historical and educational value.

We appeal to the dental societies and to individual members of the profession to regard this interest as one of transcendent importance, and, leaving it not solely to the hands of medical men, to so promote it that the hand and mind of the profession may be seen in the result of the efforts to make the dental section completely illustrate all matters within the broadened scope of dentistry.

We invite correspondence, and will otherwise, in any way possible, serve you in furthering the object for which the American Dental Association appointed us.

WILLIAMS DONNALLY, Washington, D. C.;

J. TAFT, Cincinnati, O.;

L. D. SHEPARD, Boston, Mass.;

J. H. MCKELLOPS, St. Louis, Mo.;

HENRY W. MORGAN, Nashville, Tenn.,

Committee.

AMERICAN DENTAL ASSOCIATION.

THE annual meeting of the American Dental Association will be held at Saratoga Springs, N. Y., July 31-August 7, 1896. The regular meeting of the American will begin Tuesday, August 4.

The Grand Union Hotel has been selected as the headquarters, and the meetings will be held there. Ample space for committee rooms and exhibits has been secured. The ballroom and the club house connecting with ballroom have also been placed at our disposal.

The railroad arrangements have not yet been completed, but we expect to secure the usual fare-and-a-third rate. Tickets good three days before date of meeting and three days after its close. Dentists should pay full fare going and take a receipt therefor, as it will be impossible to secure the one-third rate in returning unless you hold such receipt.

J. N. CROUSE,

Chairman Executive Committee.

ARTIFICIAL TEETH.

TO those dentists who have for many years used and approved the teeth bearing the stamp of H. D. Justi, it might seem unnecessary to further advertise them; but for the information of the great number of young men who are annually entering the ranks of the dental profession, we wish to call attention to a few points in which we claim a superiority for these teeth over all others.

In Form these will excel both in variety and in close imitation of nature, not only in her ordinary average styles, but also in what might be called her eccentricities of the form and arrangement.

In Color we have succeeded in most nearly securing that bony texture which is so distinct from the porcelain glitter we see in so many artificial teeth, and in the delicate blending of the shade they are eminently satisfactory.

In Strength they have the highest degree possible consistent with maintaining the other qualities required. It would be quite possible to make teeth much stronger by disregarding beauty of form, and making a coarse, thick block; but this ought to be, and doubtless would be, at once rejected by both dentist and patient.

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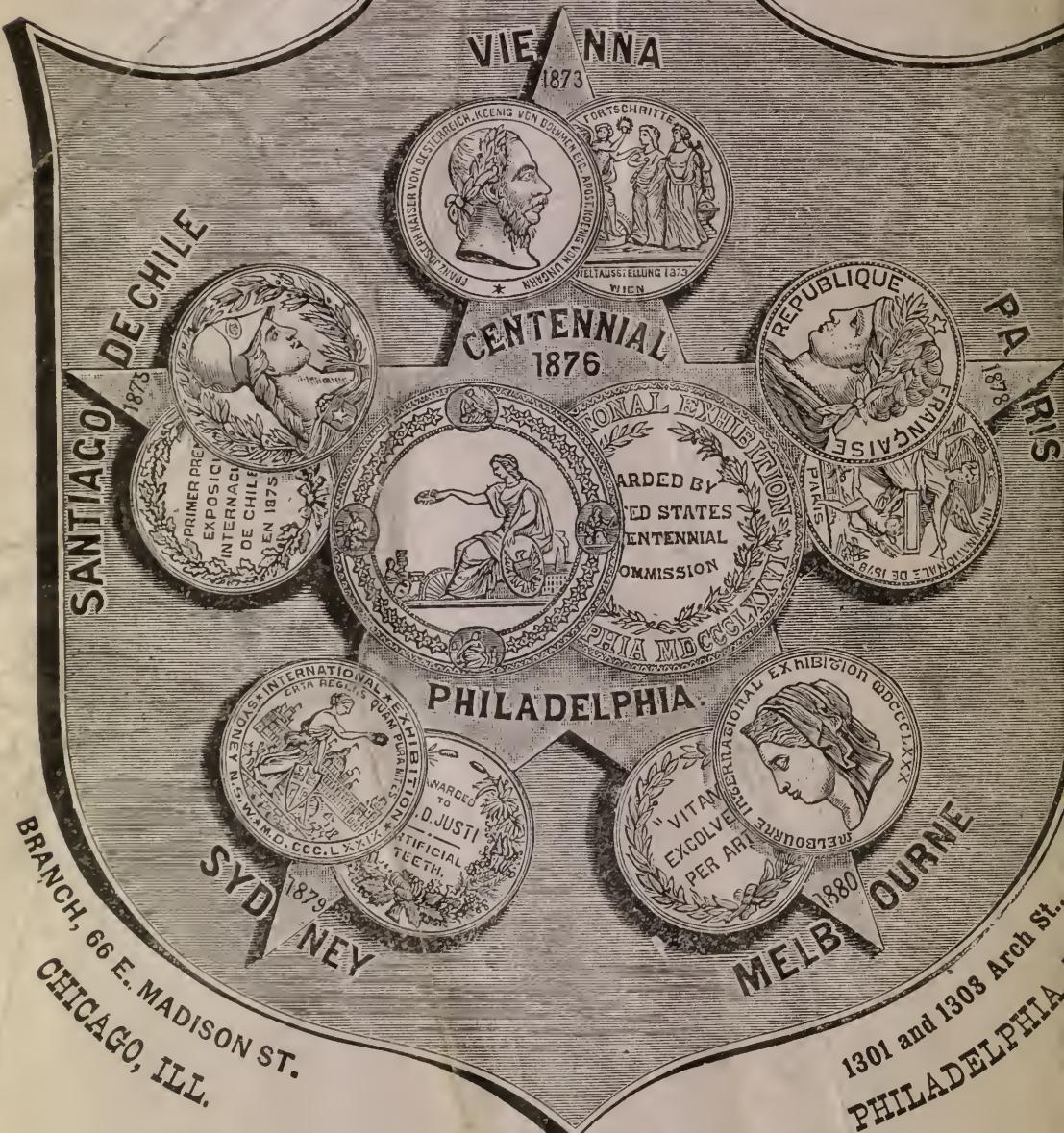
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Vol. 17.

No. 4.

OCT.-DEC., 1896.

The Dental Headlight,

A Quarterly Record of Den-
tal Science Devoted to the
Interest of the Profession.

• • •

Edited by

HENRY W. MORGAN, M.D., D.D.S.,
AMBROSE MORRISON, M.D.

Published by

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EDITORIAL

Cataphoresis—Stammering or Stuttering—The North Carolina Dental Association—Tennesseans Honored—The American and Southern Dental Associations—Marriage Notice—Book Notice.

Communications, original contributions intended for publication in **THE HEADLIGHT**, and exchanges should be directed to Dr. Henry W. Morgan, 211 North High Street; or Dr. Ambrose Morrison, 504 Church Street.

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MORRISON BROS.

T·H·E

DENTAL HEADLIGHT.

VOL. 17.

NASHVILLE, TENN., OCTOBER, 1896.

No. 4.

Original Communications.

PRESIDENT'S ADDRESS.*

BY R. H. JONES, D.D.S.

Gentlemen of the North Carolina Dental Society: Since our last annual gathering another milestone in the progress of dentistry has been passed; and from the busy walks of professional life we come, laying aside its toil and care for a brief space of time, that, by friendly communication one with another and interchange of thoughts and ideas, we may derive mutual pleasure and benefit, and thus prepare ourselves for the more proficient practice of our profession.

It is indeed fitting and necessary that, in the desert of life's struggles, there should be an occasional oasis of rest and pleasure—a sweet restorer of tired nature.

In selecting me to preside over the deliberations of this convention you have, unsolicited, conferred an honor that is highly appreciated and prized as one of the greatest in your power to bestow; and it shall be my earnest endeavor to serve you as faithfully, if not so well, as my predecessors. I congratulate you on the rapid and continued advance of our profession, which has attained an enviable position in the onward movement of the scientific bodies of the world. It has sailed out between the pillars of Hercules, on which the ancient mariners of dentistry had written "*ne plus ultra*," and discovered a new continent of learning now recognized as our legitimate domain. Should this improvement continue, and the

* Read at Morehead City June 17, 1896.

young men now entering the profession avail themselves of the increased educational advantages presenting, then the problem of the recognition of dentistry as a specialty of medicine will have been solved, and the perplexing question that now disturbs the minds of some dental writers answered. When we compare the present *status* of the profession in our own State with its condition only a few years ago, we are impressed with the fact that, without boasting, we can lay claim to a good part of the general improvement.

The great advantages resulting from these annual conventions are too apparent to require enumeration, but that they are not sufficiently appreciated it is only necessary to call attention to our small membership as compared with the number of practitioners in the State. I have endeavored, by personal effort and through the Chairmen of the different committees, to secure the attendance at this meeting of all reputable dentists, with the object of securing them as members. If this plan is not successful, it is to be hoped that some other can be devised for increasing our membership, and thus improve the *status* of dental learning and practice. Reported violations of the law governing dental practice are still too frequent, and if possible should be prevented. In some cases applicants for license, after having been refused by the board, have returned home and commenced practice in open defiance of the law. It is perhaps true that the time is far distant when all will observe the Golden Rule that should govern the conduct of every conscientious dentist, but let us aid in every legitimate way the coming of that happy era when the Arabs of practice and ethics shall fold their tents and silently steal away from our Commonwealth, never to be seen again within its fair borders.

So much has been said and written in recent years on the subject of dental education that it may well be defined a threadbare theme; but standing as it does at the threshold of professional success and improvement, I may be pardoned for a brief mention in this address. We would ascribe lasting honor to the majority of our colleges and their faithful teachers in the noble work they have done and the commendable progress they are still making in the cause of dental education; and if we as a profession will support and encourage them as we should, there will be still greater progress until the acme of success is attained. Let us realize that our educational institutions are what we as a profession make them. The day will come, and it needs not the eye of a prophet to see the approaching dawn of that period, when the people (our patrons) will demand an

educated, all-round dentist, one educated in mind and skillful of hand. Both these qualifications are necessary, and neither can be neglected if we would attain the highest proficiency in our calling.

The history of the world is to be found in the lives of its great men; and the history of art, of science, in its varied departments, is the record of the life work of its distinguished men. So it is with the science of dentistry. Its history in the United States, in North Carolina, is but a record of the lives of those who attain distinction. If we would help to write the history of our times, if we would lend our aid to alleviate human suffering, then let us realize that the road to success does not meander through the flower gardens of pleasure and along the streams of idleness and self-indulgence, but over the thorny paths of labor and self-denial and up the steep and rugged heights of perseverance to the mount of final success and fame. In this connection I would that I could so impress each member of this Society, particularly the young men, with the duty of individual responsibility that it could never be effaced from their minds. Then perhaps we would have the ideal association in which each member of the different committees would be fully prepared to perform the duty assigned him, and thus greatly contribute to the success of our conventions and the general improvement of dentistry.

A noted French writer used the oft-quoted phrase, "Comparisons are always odious," and might have added that they are most odious to those who suffer by them. When we acquaint ourselves with what has been accomplished in the leading dental societies of the country by earnest effort and painstaking investigation, we cannot but admit our need of greater diligence if we would keep pace with the progress of improvement.

The old North State still has within its borders a number of Rip Van Winkles, whose movements are impeded by the rust of ignorance and indolence. May the time soon come when their places shall be filled by men of decided educational attainments, if not by Millers, Blacks, Cryers, and Garretsons! The vast field of research and investigation is still open and inviting us to enter. Shall we follow the beaten and well-worn paths of dental practice, satisfied with present achievements, or shall we not boldly strike out into this undiscovered territory and help to garner in its untold treasures?

A careful reader of our dental journals or an attentive listener to the discussion of subjects in our societies, will be convinced of the

great need of practical knowledge and investigation and the unfruitfulness of assertion and theory unsupported by facts. A portion of each dentist's time should be given to careful and laborious investigation in some special department of his profession. In that way, and in that way alone, can he make systematic progress in his calling and contribute to the onward movement of science. It has been said that mathematics is the only exact science, but still it is possible and certainly desirable that we should arrive at more definite conclusions in the practice of dentistry. In the field of operative dentistry much of the disagreement in methods of practice arises from a lack of demonstration or proof. We are prone to accept each new theory advanced as conclusive, without subjecting it to the crucial test of experience. I trust that each member has prepared himself for active participation in the deliberations of this convention of dental workers, and thus help to make it one of the best in the history of our Society. We have representatives here from all parts of our grand old State, from the lofty mountain country of the West, with its sublime and beautiful scenery, to the wave-washed shores of the Atlantic in the East; and as we listen to the ceaseless swelling of its white-capped waves, may we take it as an emblem, and imitate it in tireless activity for the good of our Society, the acquirement of knowledge, and the advancement of the science of dentistry!

ESSAY.*

BY HAMILTON V. HORTON, D.D.S., WINSTON, N. C.

Mr. President and Members of the North Carolina Dental Society: I appreciate your having thrown the mantle as essayist upon me, but regret as such that I can bring no fit offering to this grand meeting. Would that I had for your entertainment some casket of precious gems—the rich jewels of history and learning—some mental telescope or X rays to transport you to the far-off haven of the science in our grand profession. These tributes, my friends, you must not expect of me; but I can and do bring my interest, my sympathy, devotion, and love of this Society, coupled with some few points that I hope may evoke discussion, which will prove of interest to all of us.

In the selection of my subject I have chosen

* Read at the North Carolina Dental Society, Morehead City, N. C., June 17, 1896.

THE AWAKENING OF DENTISTRY IN NORTH CAROLINA.

I feel that I but voice the entire sentiment of this body when, with the highest degree of esteem, I recall the fountain head of our successes. I allude to that little meeting in the city of Beaufort on August 11, 1875, now almost twenty-one years ago, of about a dozen of our noblest and best dentists, banding themselves together with but one thought: the advancement and upbuilding of our profession.

Around this nucleus (if I may so term them) of professional brethren, warmed and inspired by their examples and teachings, we to-day see this distinguished body of men; some coming from the mountain gorges of the West, others from the cypress swamps of the East, now to vie and interchange thoughts. What does it mean, but that we are all awakened from our state of lethargy to the scientific theories and progress of our chosen profession?

The rapid advancement of dentistry is due to the fact that we each day realize more fully the importance of a thorough education, for without this we can never be classed as a true profession. To this end we point with pride, and are to be congratulated upon the marked improvement of dental periodicals in our country, and the higher grade of scientific and practical papers, some emanating from members of this Society.

With due appreciation and affectionate admiration, let us look at our Examining Board, who are serving us advantageously, with a mere pittance as remuneration. Their work is indeed important, and to their duties they are faithful. I feel that we are to be congratulated in having such successful laborers, and that we should rejoice in their eminent qualifications, and ever express our sincere and fervent gratitude for their services; yea, more, for their fidelity and usefulness to our profession. Let us sustain and help them, and do our duty as they do theirs; and the effulgent light of knowledge which streams from their rekindled desks will dissipate the last vestige of ignorance that beclouds our future as a true profession, and will hasten the dawning of that bright day when our old North State, hearkening to the drum beat of knowledge, shall stand among the foremost of her sisters in the grand march of professional progress and dental education.

There is a field for each of us as individuals to labor in. I allude to papers on the various subjects assigned us. Have most of us come here with papers ready to read, with new ideas to enlighten the profession and benefit mankind? I trust that we have, and that

this will be the best meeting that we have ever had. Some may say: "The subject assigned me is too old." This may be true, but the old is ever new when added to.

It is extremely gratifying, gentlemen, to notice how successful our efforts to educate the masses of the people of our State to the importance of dentistry are proving. Many patrons now come to us in the primary state for operations, making our efforts so much less tedious and more durable. I believe that we have fewer dead teeth to deal with than ever before, and this is the most undesirable part of dentistry. How gladly will we hail the day when dead teeth and false teeth are almost a thing of the past! I venture the assertion that some of our practitioners present, who have served us from twenty to forty years, will say that they do not put in one-sixteenth as many plates as they did twenty years ago; yet note how much more money is expended. There is annually in our United States not less than forty million dollars paid out for dental services, and still how many people do not as yet patronize dentists. But how gratifying it is to know that those who are awakened to the importance of good dentistry acknowledge our successes and compliment and congratulate us even more generously than our egotistical estimate of professional worth could desire. I allude, of course, to the patients who pay their bills.

I trust that we shall soon see in our State University, or at some other place, the establishment of a chair of Dentistry. Are we not as truly a profession as that of medicine or law? and these are already established. To this attainment I hope ere long to see our Society take steps. Men of talent, take this in hand, and make for yourselves a name that will live like the stars and give unalloyed happiness to mankind. What is better calculated to bring sleep to the eyes, slumber to the eyelids, and cradle a conscience upon a bed of roses, than to know that through your efforts North Carolina could boast of the best dentists in the Union—men that have had advantage of a thorough technical training? It is ever granted that the more a dentist knows the better equipped he is to do the most good.

In one of our journals I once saw: "To succeed one must possess ambition, persistence, self-reliance, dignity, neatness, culture, refinement, a straightforward but genial manner, a retentive memory of face and name, and a great intuitive knowledge of human nature"—in short, know how. These are the foundations of permanent success, and are as requisite to a dentist as to the physician or lawyer.

And now, as to our dental laws. In our United States they are almost equal in number to the States and Territories combined, and most of them are of recent date, which fact goes to show that there has been considerable increase in this class of legislation lately; and thanks to some of the members of this Society, we can justly boast of as good laws in North Carolina as in any other State in the Union. But now that we have such laws, are we as individuals using our just rights to see that violaters and impostors are prosecuted? Notice in the office of Register of Deeds in each of your counties, and see how few have fully complied with the laws provided for our protection and interests. What good will a law ever do that "purports to be designed to elevate to a higher standing of dentistry and to protect our people from imposition," if not upheld by us as a society? Some of the prosecuting attorneys of our State have expressed a willingness to aid us, and those that have not should be made to. Let us take steps along this line now. We so often discuss subjects fully, but leave this very important one untouched; and yet, what is more important? Often our brother dentists from the smaller towns and country come to us in private and complain of some charlatan or quack's treatment of them. Now the law regulates dental practice, and can we not regulate these would-be dental practitioners?

One more point, gentlemen, for fear I have been tedious, and I will have finished. I allude to prices. It has been said that every man recognizes his true worth, and puts his prices accordingly. In a manner this is true, while in other respects it is not. I feel that I can speak advisedly on this point, for, unfortunately, I live in a section where our charges are exceedingly low; yet the proficiency and skill of the operators, as well as the class of work done, is, in my opinion, up to or above the average. In my section it seems that most of us are practicing from purely philanthropic motives; and I fear that it is not confined to my section alone, for we hear from almost all over our State a continued clamor of some dentist underpricing another. Can we, and should we, not take steps in some direction? Can we not make a precedent for urging such steps upon dental societies? Why say such thoughts are not professional orthodoxy? For whether this be granted or denied, the financial phase is not of irrelevant interest to us all. Are we always to be a "noble army of martyrs," who do much for others but little for themselves. Most of us are on a par with wage earners. Few indeed have attained that happy state that their daily bread is not

dependent upon steady employment and good health. Our fees are mere pittances, not sufficient, should we be called to the great beyond, to give us the happy assurance that our beloved wives and children are well provided for. Why should we come in daily contact with people of wealth, and yet be deprived of it ourselves? I appeal now to young men particularly. Should we in the prime of youth sleep and dream that life is beauty, and awake ere 'tis too late, when age creeps on, and our ambition flags and eyes are dimmed by advancing years, and then first realize that life is duty, and that our bank account and financial rating are just what they were—say twenty or thirty years ago?

Let us look these matters fairly in the face, and ever be vigilantly at work, pressing onward and upward, to a better proficiency in general progress and professional pride.

DENTAL PROPHYLAXIS.

BY J. S. SPURGEON, D.D.S., HILLSBORO, N. C.

THIS subject has been much discussed in our Association and dental journals of late, but so far as I know we have arrived at no set rules to guide our methods of practice, leaving each practitioner to form his own conclusions and adopt his own methods. This is as it should be, for unless a man feels his individual responsibility, his best exertions will never be called forth.

We have long ago realized that good teeth are essential to the proper mastication of food, and that without them and a healthy condition of the mouth the general health cannot be maintained in its highest possible degree. Through the efforts of the liberal practitioner, this fact has become more and more appreciated by the general public. This is evidenced by the advance in dentistry during a few decades from a humble art to one of the most exacting sciences, learned and liberal, with a literature of its own; and we can make it more liberal by adopting this universal rule—that is, to "never lose an opportunity to advocate and educate our patients in matters pertaining to the care and maintenance of a generally healthy condition of the mouth."

The dentist is not doing justice to his patients by simply filling all the decayed teeth; but he should instruct his patients as to the

* Read at the meeting of the North Carolina Dental Society, Morehead City, N. C., July, 1896.

necessity of making visits to him at regular intervals, that all accumulations of tartar may be removed, and any forming cavity promptly stopped, and such treatment used as the conditions of the mouth may indicate. Under these conditions a really painful operation will rarely, if ever, be necessary. However, we should not forget to instruct our patients that, even in its present stage of perfection, dental science cannot accomplish the greatest good to their teeth. In fact, it is almost worthless without their own prompt, careful, and regular attention in thoroughly removing all food substances that may find lodgment therein. For wherever there is fermentation or decomposition of organic matter, there innumerable colonies of disease germs are generated, and quickly become highly destructive to the parts they infect and their surroundings.

When we as a profession fully realize the importance, value, necessity, and our obligation to properly instruct our patients in regard to these matters, we will have taken a long step in the right direction, and the public will have been benefited to a degree that is impossible to estimate. I know that it may be argued—and justly, too—that we cannot afford to consume so much time for which we receive no compensation; but I do believe and assert that we, for many reasons, owe our patient this time, just as surely as we owe him the time required to fill a cavity, for which we make our usual charge.

Who among us has not noticed the enormous difference in artificial dentures and bridge work? Gentlemen, *we* are responsible for these differences to a large extent. It may be further argued that the monotony of continually drumming into our patient's ears things of which he knows little, cares less, and does not appreciate, taxes our nerves beyond the point of endurance. But this may be overcome by the tact and ability of the dentist to make his instruction interesting and valuable.

Instruct for the love of the highest science attainable in your profession. For the love of honestly doing the greatest good possible to those whom you serve, get at it right, follow it honestly, and you will make lifelong friends of passing patients. You will have done untold good to the people whom you serve, and you will have built for yourself a reputation that no man can take from you.

The old saying that "one ounce of prevention is worth a pound of cure" was never more truly applicable to anything in the world than to the care of the mouth, but how can the average person know these things unless he be taught by his dentist?

It is true that physiology and hygiene are taught to a certain extent in a general way in our schools and colleges, but those students never get an accurate knowledge of the care and preservation of a healthy condition of the mouth. You must give your patient accurate instruction in all the details, or the work will be imperfectly done, and the results looked for will never be realized.

Dr. Ross, Emeritus Professor of Dental Hygiene and Operative Dentistry in Vanderbilt Dental College, said on one occasion that what he regarded as the best investment he ever made in his life was, when a boy, he gave a quack dentist five dollars for three lessons instructing him how to use the brush, quill pick, and cobbler's thread, now superseded by dental floss. We all know their importance, and their intelligent use should be emphasized as much as possible.

Now a few words in regard to the preservation of a healthy condition of the soft tissues and mucus membrane of the mouth. We have already seen that the first step in this important matter is a clean and healthy condition of the teeth, so that the next things to know are the conditions and indications when we see them. Make a correct diagnosis, and we have remedies and agents that are very efficient for most every case with which we come in contact. Stomatitis in its different forms, aphthus, painful acidity of the saliva, epulis, and even a large per cent of cases of the much dreaded pyorrhea should yield to the treatment with which every dentist should now be familiar. Right here I would like very much to go into the discussion of these conditions and agents, but such a discussion would properly come under another subject, so I pass them by.

In conclusion, let me say that I fully believe that ninety per cent of the diseased conditions of the mouth and teeth are caused by neglect on the part of the patient. Would a tooth ever decay if kept perfectly and absolutely clean? However, I know that it is almost impossible to constantly keep the mouth free from foreign matter in some stages of fermentation, yet the intelligent patient, with the proper instruction, will form habits of careful cleansing that will practically accomplish the desired results. He *will* attain an approximation of that degree of cleanliness so necessary for the preservation of the teeth and for the maintenance of a healthy condition of the gums and lining membrane of the oral cavity.

Realizing these things, it should be the ambition of every dentist to *prevent* disease so far as lies within his power, for in that lies the highest art in the scientific world of dentistry.

DENTAL HYGIENE.

BY DR. CHARLES A. BLAND, CHARLOTTE, N. C.

THE truth of the old aphorism, "an ounce of prevention is worth a pound of cure," is realized to-day more than ever before. Consequently prophylaxis has developed into one of the most important branches of medical science; but, unfortunately, so many of us devote our lives to the study of pathological conditions that we lose sight of the art of hygiene. The man who can alleviate pain, and, by his knowledge of medicine, bring about a restoration of the harmonious conditions existing in health, deserves great praise; but no encomium is too great for the scientist who, by his teachings, enables us to avoid those fearful maladies which rob life of all its pleasures.

The dentist has the satisfaction of knowing that he does more instructing in this particular line than even his medical brother. By his skill mastication is rendered possible, and many disorders avoided. How many has he saved from the inquisitorial horrors of neuralgia? His prophylactic achievements are countless; but a still broader field, as yet undiscovered, lies before him inviting him to make greater efforts, and encouraging the hope that the medical millennium may eventually be reached. Then we can literally "throw physic to the dogs!" The proper use of the teeth is one of the greatest factors in the prevention of caries and salivary calculus. We know that the strength of a limb depends upon its exercise. This same principle is applicable to the dental organs. If they are used in the mastication of food, especially if it is a food that requires considerable trituration, they are kept in a healthy condition. The beautiful teeth found in the mouths of savages are undoubtedly due to the coarse foods upon which they subsist. The truth of the foregoing statement is evidenced by the rapid accumulation of tartar and the increased tendency to caries on those teeth which have no work to do. Another proof is that persons convalescing from long sickness, during which period the food was of a liquid character, suffer exquisite pain from the slightest pressure on their teeth. The evolution of man from the savage to the civilized state has been attended with serious result to his physical organization. The brain has been developed at the expense of the body, and in consequence we have to-day many ailments unknown to man.

* Read before the North Carolina Dental Society at Morehead City, N. C., July 18, 1896.

in his pristine state. What is true of the general health is true of the teeth. Modern cooking, and the use of breads made from flour which has been robbed of many of its chemical ingredients, have a very deleterious influence. The teeth, being deprived of the work nature intended them to perform, and being insufficiently supplied with nutritive substances, will decrease in size and number and become poor in quality. It is then clearly our duty, so far as possible, to prevent this retrogression. The prophylactic treatment should be commenced with our young patients. They need to be impressed with the importance of using the teeth and of absolute cleanliness, and they should be put on a diet rich in calcium, phosphates, and carbonates. If these rules be followed, improvement will soon be noticed. The saliva should be tested with litmus paper, and if found to be strongly acid, an alkaline mouth wash must be given as a safeguard against chemical abrasion; for, notwithstanding the fact that we know little of the causation of this disease, we are all aware that it usually occurs in mouths of acid reaction. When chemical abrasion is present its ravages may be arrested by cauterizing with nitrate of silver the parts affected. This treatment has also been employed to check the process of disintegration in shallow cavities, and it has been proved efficacious. However, it has not been in use long enough to gain much popularity. The use of the teeth, cleanliness, and the proper supply of nutrition constitute the foundation on which dental prophylaxis rests. Until we can get our patients to regard carefully these cardinal principles, we shall be forced to continue our repair work. It is very well to construct beautiful bridges, to make the mouths of people resplendent with contour fillings. These are monuments which attest our mechanical ability, but we must erect monuments to our scientific attainments before we can hope to reach the acme of success and be recognized as men of superior intelligence and education. It is not my desire to antagonize the views of the older members, whose hairs have grown white in their endeavors to advance the profession; nor is it my purpose to sow the seeds of discord in these usually harmonious meetings. But a great question confronts us: Is the *status* of dentistry to-day favorable to the study of prophylaxis, or any subject that requires scientific investigation? There are, it is true, many in the profession who have literary attainments and are capable of working wonders; but, on the other hand, it is a lamentable fact that many enter the profession who, from their lack of mental training, are incapable of being anything above ordinary mechanics. The dentists should establish a higher standard. The colleges and examining boards should recognize the importance of education. Then indeed will dentistry be considered a great profession, and no longer be the target for clownish witticisms.

Selections.

LINING ROOT CANALS.*

BY L. P. BETHEL, D.D.S., M.D., KENT, O.

IN the treatment of teeth with devitalized pulps, a medicament that not only sterilizes the contents of the root canal, but leaves behind an antiseptic deposit which prevents the subsequent development of microorganisms, would be an ideal disinfectant.

With this thought in mind I began a series of experiments some months ago, taking nitrate of silver for the first agent.

We know how useful this salt has been in the treatment of certain superficial cavities in the teeth of adults and various cavities in the teeth of children, preventing decay as long as the discolouration remains. If in this location, where it is exposed to the varying conditions of the oral fluids, it will prevent subsequent decay for a considerable time, why should it not remain unchanged for a much longer period when sealed within a root canal and remain, perhaps, as a permanent barrier to the development of germs?

Repeated attempts at pumping it into the canal by means of wooden points, broaches, etc., proved unsatisfactory, for the silver nitrate solution would not go beyond the point of penetration of the broach; and the cases most desired to treat were small, branching, or tortuous canals, where it was impossible to pass even a broach. By the aid of cataphoresis, however, the silver nitrate was forced beyond where the broach extended, into small canals, etc., as these specimens show. Microscopic examination shows that the nitrate of silver is forced, by means of cataphoresis, to a greater depth into the tubuli of the dentine, more thoroughly sealing them, than when applied to the surface by ordinary mechanical means.

In the preliminary experiments out of the mouth, the silver nitrate was used in connection with various agents—such as sulphate of soda, one per cent H_2SO_4 , etc., but the silver nitrate being itself a good conductor of electricity, it was found most satisfactory when used alone in an aqueous solution made from distilled water to avoid all organic material. Various strengths were employed, from ten per cent to a saturated solution, those giving the

* Abstract of paper read before the American Dental Association, Saratoga, N. Y., August, 1896.

best results being from forty per cent to seventy-five per cent solution.

The process of application is a simple one: Adjust the rubber dam, and if the crown of the tooth needs protection from discoloration, apply a thin coating of melted wax to the interior surface. Next apply the silver nitrate solution to the canal by means of a wooden toothpick, or other suitably shaped piece of wood, pump it downward into the canal as thoroughly as possible, place electrode into pulp canal opening, then a pellet of cotton saturated with the nitrate solution around electrode at the orifice of the canal, and the electricity does the rest.

The electric current turns the cotton first a light green color, which grows darker until almost black, and serves as an indicator. The time of application will vary according to the condition of the root canal, whether well opened, its size, strength of current, and per cent solution of the silver nitrate. The higher per cent solution, the better conductor it makes and the quicker it is deposited. From one to five minutes seems to be ample time.

After removing the electrode, cleanse the pulp cavity and canals as well as possible with dilute ammonia to neutralize the nitric acid set free, and also to hasten the darkening of the nitrate of silver.

In the majority of practical cases I have been using the nitrate after the root canal has been sterilized, although in several cases it was used without previous sterilization, the cavity sealed, and no after trouble experienced.

The root canal lining is not advocated for all teeth; indeed, the practitioner must use judgment in its application. It would not be advisable in the anterior teeth on account of discoloration, or teeth where the foramen is large, as teeth not fully developed, and others, on account of forcing it through the apex of the root. Just what would result from such an accident I am unable to state from practical experience. I have tried to force the solution through the apex of a normal root, out of the mouth, but in every instance it has penetrated just through the foramen and stopped, due possibly to forming an albuminate when coming in contact with tissues at the end of the root, and thus limiting its own action.

The object of these experiments is to find a means of treating root canals that are too small to admit a broach, those branching or tortuous, those in flat-rooted teeth, etc., where it is doubtful about inserting a protecting root filling. If such root canals are thor-

oughly lined with the nitrate solution, and it penetrates somewhat into the tubuli, as it does, the probability is that there will be no subsequent trouble even though the root filling should be defective. And, indeed, it is a question if root filling would be necessary at all, especially in small canals.

Roots treated by this process out of the mouth, when filed reveal the outlines of the canals, their restrictions, obstructions, and unlooked for branches that probably would not be found in ordinary root treatment and filling, and left, perhaps, as a harbor in which bacteria may multiply and cause subsequent trouble.

This is only the beginning of a series of experiments in this direction. What the future may disclose time alone will tell.

DISCUSSION.

Dr. Abbott, of New York, said that cataphoresis takes too much time. He uses chloride of zinc, and fills with oxychloride. He thought the silver nitrate would penetrate the tubules and become a source of danger to the cementum and pericementum.

Dr. L. L. Barber, of Toledo, O., said that this treatment had proved satisfactory to him where other means had failed. He cited a case of a lower third molar, abcessed, that had resisted repeated attempts at treatment with various disinfectants, the tooth becoming painful after the dressings had been sealed in. One application of silver nitrate solution cataphoretically, as advocated in the paper, was used, the cavity sealed, and no inconvenience to the patient has been experienced since the operation.

Dr. Ambler, of Cleveland, O., said that while he was experimenting with nitrate under amalgam fillings, Dr. Bethel suggested its use for root canals, and together they made some preliminary experiments. He had since operated on cases in the mouth, and no trouble has been experienced. He does not operate on roots having a large foramen, but where the canals are small and it is almost impossible to pass a broach. Cataphoresis drives the medicament deeper into the tubules than when locally applied, and this is an advantage. In the root canal operated on with nitrate of silver you have an insoluble compound sealing the tubules, which cannot be penetrated by anything from the outside. It is not intended for teeth of children, or where the foramen is large. It is not claimed that the use of silver nitrate is new, but this particular application of it certainly is. He has also used it with good results under amalgam fillings. There can be no subsequent decay as long

as the dark deposit remains. He does not ask any one to use this method if they don't desire to do so, but he has had good results from its use.

Dr. Stephan, of Cleveland, O., does not think that nitrate of silver should be used under any filling where there is a live pulp, on account of the liability of its causing the pulp to die.

Dr. B. Holly Smith, of Baltimore, Md., said that he was very much pleased with the paper. This was the beginning of a series of experiments in the right direction, and they should be encouraged. He thought that the idea of cataphoresis taking too much time, as expressed by Dr. Abbott, was entirely out of place. Let the operator have two chairs, if need be, and a competent assistant to operate the cataphoric machine. He asked how it was that the current of electricity would carry the nitrate along a tortuous canal?

Dr. Joseph Head, of Philadelphia, Pa., said that as the canal was much larger than the tubules, it contained a greater amount of moisture, and was therefore a better conductor of the electricity, which would flow in the line of least resistance.

Dr. James Truman, of Philadelphia, Pa., said that nitrate of silver, being a strong antiseptic, would prevent the development of germs, but it would discolor the tooth substance. It would be carried into the tubules by osmosis, and where would its limitations be—in the pulp cavity, or in the cementum? He had applied nitrate of silver to a tooth substance, and found that it penetrated into the tubules. He preferred to use a medicament that would not discolor, and recommended chloride of zinc. Its application should not be by cataphoresis, however, for that would drive it through the tubules, and would be apt to prove dangerous to the cementum and pericementum.

Dr. M. L. Rhein, of New York, thinks that, if an escharotic should be used, zinc chloride offers superior advantages. We should use cataphoresis carefully, for the electric current reduces the medicaments to their nascent state.

Dr. J. Taft, of Cincinnati, O., thought that the gentlemen had an exaggerated view of the coloration of silver nitrate. In solution it is a colorless liquid. When applied no coloration is observed, but after a few moments it discolors. Nitric acid is set free, and combines to a limited extent with the lime salts of the tooth. The silver is precipitated on the surface, and not in the tubules, as an oxide, which becomes inert as soon as its action is limited. The idea of possible discoloration should not stand in the way at all.

Dr. A. W. Harlan, of Chicago, said that he made many experiments with teeth set in wax and plaster, and in the jaw itself, to test the penetrability of coagulating agents. A solution of silver nitrate will not penetrate the tubules to any appreciable extent, certainly not enough to cause discoloration of the tooth. The specimens passed around show that the oxide does not reach the cementum. He said that he had a number of teeth imbedded, in which he had sealed nitrate of silver solution in 1894, but which he had not yet opened. He had any number of teeth in which the essential oils had been sealed. His experiments in this line have been very extended, and he knew what he was talking about. Chloride of zinc, as soon as satisfied with water, stops its action. You cannot drive nitrate of silver through the apex of a normal root for when it comes in contact with the tissues at the end of the root it forms a coagulate and limits its own action. You will not get a permanent discoloration of the dentine with silver nitrate solution, for, on account of its coagulating properties, its action is limited. He was glad that Dr. Bethel and other Ohio men were experimenting in this direction.

Dr. H. L. Ambler, of Cleveland, O., said that nitrate of silver had been often used for superficial decay and to prevent further erosion by applying it to the affected surface of the tooth. He has found that when applied to an eroded surface by means of a minute piece of cotton saturated with the solution and the cataphoric currents used, it penetrates deeper into the dentine, and the effects are more lasting. Silver nitrate is superior to other agents, for it makes an insoluble compound with the albumen of the tissues. In root canals just so far as the dentine is moistened with nitrate you get the discoloration. He has experimented on pulps of freshly extracted teeth, and by means of the nitrate used cataphorically they are thoroughly destroyed. It might prove an efficient means of devitalizing pulps.—*Ohio Dental Journal.*

THE DISINFECTION OF PULPLESS TEETH.*

BY J. W. WASSALL, M.D., D.D.S., CHICAGO, ILL.

GIVEN a tooth with a decomposing pulp, what is the nature of the pathological state with which we have to deal? We find a condition in which the pulp chamber, root canals, and dental tubules are loaded with putrefactive animal matter.

*Abstract of paper read before the American Dental Association, Saratoga, N. Y., August, 1896.

One has but to recall the large amount of soft tissue contained in the dentine and its formative organ to realize the danger of the situation.

Now, while the removal of this necrotic mass from the chamber and canal, and the disinfection and filling of the vacated space is a manifest necessity, and is the general teaching and practice, I contend that there is not a general appreciation of the fact that the dentine itself continues to remain septic.

There are three classes of cases in which we have pollution of the dentine by putrefactive products:

1. Teeth the pulps of which have perished from encroachment of caries, the pulp chamber being open.
2. Teeth the pulps of which have died from proximity to a large filling, attempts at capping, or insufficient sterilization of the layer of caries allowed to remain over the pulp.
3. Pulpless teeth the canals of which have been imperfectly filled or sterilized, or both.

A tooth the pulp of which has been devitalized intentionally is excluded from consideration in this connection, for the reason that under ordinary aseptic precautions putrefaction does not occur.

The essential pathological condition to be recognized is the same in all three classes given. We have dead dentine infiltrated with matter highly irritating and poisonous to living tissue in intimate contact with vital cementum, which in turn is closely enveloped in pericementum.

What must be the effect on the cementum and periodontal membrane of the *materies morbi*, which are present in the underlying dentine?

There is no escape from the conclusion that it must account for many morbid conditions and symptoms, the etiology of which is otherwise obscure. There are no doubt exceptions of teeth in this state which cause no discomfort, but a little more time may prove that even these cases will not continue quiescent.

Unquestionably this condition is responsible for numerous affections, more or less difficult of diagnosis, varying from neurosis to remotely situated abscesses, the only subjective symptoms in the causative tooth discoverable being a slight sense of lameness in mastication or to palpation.

What treatment does this pathological state indicate?

It will not be uninteresting to first notice some of the methods which have of late been prominently set forth.

The various mummification processes are only temporarily effective, because, to use Dr. Harlan's words, "they will not stay mummified."

Emil Schrier destroys pulp remains with a mixture of sodium and potassium, which is objectionable on the ground that the action of the drug does not extend into the entire depth of the tubules.

Prof. Frank Abbott has written a work on "Dental Pathology and Practice," which will be widely read. It is peculiarly unfortunate for the younger members of the profession, whose methods are most likely to be influenced by it, that the chapter devoted to the consideration of this question should be so inconsistent with modern bacteriological knowledge.

Dr. Abbott imparts a lucid understanding of the fact of putrid dentine and the conditions to be overcome, but the treatment proposed is contrary to the commonest laws of asepsis. The triumph of modern surgery is secured by striving to prevent the entrance of germs into, rather than their destruction after admission, to a wound. How hazardous to teach that a pulpless tooth may be operated upon without first adjusting the rubber dam. The neglect of this precaution against the ingress of myriads of microorganisms, which are always present in the human mouth, is hardly excusable at this day. Dr. Abbott also recommends the use of bichloride solutions for syringing out the pulp *débris*. "This is of doubtful utility, because it is at once precipitated in the presence of albumen, thus losing its germicidal and antiseptic powers." (McFarland.)

It is also bad practice to pump zinc chloride through a tooth to cauterize a pus sack until a course of treatment for sterilizing the dentine with diffusible disinfectants has first been completed.

These few criticisms are submitted in order to substantiate the charge made at the opening of this paper that much of the modern practice in the management of pulpless teeth does not conform to the present *status* of bacteriological science.

The successful treatment of teeth contaminated with putrid pulp matter would, to my mind, seem to depend upon the strict observance of two details of procedure:

1. The exclusive use of diffusible disinfectants.
2. The repeated and continued application of the disinfectant dressings for a sufficient length of time.

The reason why I give diffusible disinfectants the preference over coagulating drugs is because I am satisfied that exhibition at the pulpal orifices of the dentinal tubules forms a plug of coagula-

ted matter, which prevents the further ingress of the disinfecting agent, imprisoning within the tubules putrefactive matter which will be a permanent source of irritation to the cementum and pericementum.

If it is true, as maintained by Drs. Truman and Kirk, that the entire contents of the tubules are coagulated, there is nothing gained, for the resulting mass is suitable pabulum for microorganisms. Hence there would be no assurance that putrefaction would not recur within the tubules. . . .

In the investigations thus far published, the preponderance of evidence seems to be in favor of the avoidance of the coagulating drugs in the roots of pulpless teeth.

The second requisite to success in the disinfection of putrid dentine mentioned was the element of time. How long shall a dressing be kept in the canal before it is proper to fill the canal? Until the dentine is permeated throughout its entire depth, and until all microorganisms and their spores may reasonably be expected to be destroyed.

My observations are that these results are obtained in not less than twelve days, oftener sixteen or twenty; and in some cases a longer course of treatment is required. The dressing should be changed every four days until no stain or odor is perceived in the cotton dressing other than the drug employed. Even though the dressing may come away clean on the fourth or eighth day, and you feel morally certain that the bacteria are killed, it is imperative that the use of the drugs be continued for the full period in order to also kill any spores which may be present; for they offer greater resistance to germicides, and hence require more time for their destruction.

DISCUSSION.

Dr. F. Abbott, of New York, said that the crowning point of all scientific treatment is the result obtained. You may say that there are spores and bacteria, etc., but if they cannot develop, what is the difference? You treat these teeth day after day, and what does it amount to? They are plugged up and filled with an antiseptic. This may act as an irritant. He has seen cases treated in this way where blood and pus were discharged after three or four days' treatment. He applies an antiseptic and keeps the parts antiseptic by not drying it out, filling in over this. He believes that coagulators should be used in the treatment of pulpless teeth, and that

there is no material equal to chloride of zinc for the purpose. He asserted that if his method, as advocated in his book, was followed, there would not be one failure in a hundred cases so treated.

Dr. Patterson, of Kansas City, Mo., said that if you take a tooth that was diseased a considerable time, and then filled in the manner advocated by Dr. Abbott, you would find by cutting into the dentine that it was not sterilized. This ought to satisfy any man that his method was an incorrect one, and that the dentine is left in a deplorable condition. The disinfectant should penetrate every zone of the dentine, as many of the after troubles must result from leaving a zone of dentine in such a deplorable condition as found. He did not propose to take such risk.

Dr. W. H. Morgan, of Nashville, Tenn., said that many supposed that the treatment of pulpless teeth was a modern method. In 1847 teeth were treated about as they are to-day, the main difference being that they drilled them out as much as they dared. The canals were then treated with antiseptics—mainly creosote—carried into them on pieces of floss silk, which was well packed into the canal. Their test for thorough disinfection was absence of odor. He could show teeth filled forty years ago by this method that were in good condition to-day. The teeth are easier to treat successfully in patients of good constitution. The teeth of mulattoes are exceptionally hard to save after the pulp has become devitalized. They seem to take on inflammation and cause trouble. In fifty years of practice he has seen only two mulattoes (adults) that had perfectly sound teeth. He thought intermarriage to blame for these conditions.

Dr. Barrett, of Buffalo, N. Y., said the contents of the tubuli is albuminoid in character, and partially organized tissue. It will coagulate spontaneously if given a chance. It will melt out, for this is one of the laws of disintegration. It is not the character of the medicament that determines his choice of the disinfectant, for he believes it impossible to get anything into the tubules that will pass through to the pericementum. If we seal the mouths of the tubules, it is not necessary to go farther, for the amount of the material left in the tubules is so small that no harm will come from it. He thinks that we are getting into speculative philosophy a little too deep. The middle ground between the utter want of scientific treatment, as exhibited by Abbott, and the highly scientific treatment proposed by the essayist was the best to take. He believes that every dentist should do his best; that honesty is the normal

condition of man, and until our instruction has been bad we will remain honest and choose what is best.

Dr. Rhein, of New York, believes that while coagulants are not the barriers that are claimed, he does believe that they make a certain barrier to the diffusion of medicaments. By acidulating solutions or bichloride of mercury you do away with coagulating effects. He has found no method so effective in the treatment of pulpless teeth as that advocated by Dr. Schrier. The tubuli are left more open than by any other method he has used, and consequently the essential oils are more readily diffused after this treatment. He has observed cases thus treated, where the taste of the oily dressing came through the cementum after forty-eight hours from the time applied.

Dr. Wassall, of Chicago, in closing the discussion, said that the most perfect method is the one to adopt; that sublimate precipitates in the presence of albumen and becomes inert. In using the combination of bichloride and peroxide of hydrogen, the good results may come probably from the peroxid, as the bichloride is precipitated. The discoloration of the cotton used for the dressing in a root canal is not from the drug, but from the putrid matter in the tubules that exudes by osmosis.—*Ohio Dental Journal.*

THE DENTAL FILLING.

BY JOSEPH HEAD, D.D.S., PHILADELPHIA, PA.

FOR the last fifty years dentists have declared that a filling must be water-tight, forgetting that the tooth itself is thoroughly pervious to moisture, and also forgetting that many fillings which admittedly leak keep on preserving the tooth structure indefinitely. Jack has put in soft fillings, under water, that have done good service for years. Elliott's observations concerning the universal leakage of amalgam plugs are verified by the daily experience of each dentist, and yet who will say that, in spite of leakage, amalgam does not save the teeth well?

Drop a fresh tooth, filled with gutta-percha, into aniline ink, and at the end of five minutes the entire cavity under the filling will be stained.

The oxychloride of zinc and the oxyphosphate of zinc are permeable to moisture; nevertheless cement and gutta-percha are indispensable to those operators who would serve the best interests of their patients.

Cohesive gold and tin are claimed by their admirers to be non-leaking materials; but when a tin or cohesive gold filling is first carefully cleansed and then melted, a decided odor of burnt organic material will be perceptible, which would seem to emanate from the interior of the metal. In the light of this fact further proof is necessary before cohesive gold and tin can be said to positively seal the cavity margins. And if they should be proved to absolutely seal such margins, the mere fact that the other materials frequently preserved teeth would be conclusive evidence that leakage of moisture in itself is not a serious objection.

The destructive electro-chemical action of filling materials on the teeth, once so strongly advocated by Chase, has been proved by Miller to be untrustworthy; and if Miller's experiments had not been so conclusive, the daily dental operations, where tin and gold are advantageously combined, would of themselves, as years go by, prove the electro-chemical action in the human mouth quite harmless.

That such currents do exist at times no one who has put an amalgam filling in an acid mouth containing gold can for a moment doubt. And it is certainly true that such currents are invariably accompanied by chemical dissolution; but practically no harm results, as an insulatory coat soon forms on the amalgam, which effectually puts a stop to any serious corrosion. Instead of saying that an efficient filling should be absolutely water-tight, and should have no electro-chemical action on the teeth, might it not be said that the perfect filling will exclude bacteria from the cavity as thoroughly as would normal enamel? in fact, that it will exclude them absolutely?

Let us see if we have such a filling material. Oxychloride and oxyphosphate of zinc leak bacteria, the proof being as follows: Hollow balls of oxychloride of zinc and hollow balls of oxyphosphate of zinc were thoroughly sterilized and then dropped in a solution of *bouillon* that had been inoculated with a decayed tooth. At the end of five days they were opened. The *bouillon* had filtered through the substance, and that found within was swarming with bacteria.

Gutta-percha was tested as follows: Several old cuspid teeth of dense structure were drilled through from end to end, the pulp canal being eradicated. With proper precautions these were sterilized and filled at each end with gutta-percha, a small pellet of cotton soaked in sterilized *bouillon* being left inside. These were subjected

to steam heat for an hour five separate times, an interval of a day elapsing between each heating. They were then placed in tainted *bouillon*. At the end of five days they were examined, and the cotton soaked by broth was found to contain coccii, piplocci, streptococci, and staphylococci. The reports of these two experiments are given at full length in the June number of the *International Dental Journal*. The gutta-percha test is not conclusive, as Miller has shown that bacteria may very occasionally penetrate the normal dentinal tubules; but at least the experiment would seem to indicate that gutta-percha could not keep them out, which is the real point at issue.

That valid amalgam fillings at times leak bacteria, as well as moisture, no experienced practitioner will deny.

Tin and cohesive gold are the only materials that may exclude bacteria. That they do exclude them is yet to be proved. Soft foil fillings have been picked out from cavities by the explorer in a pulpy, evil-smelling state, to all appearances full of bacteria, and yet the dentine beneath has been found firm and sound.

It is a most astonishing fact that soft foil fillings may be soft and mushy without the least harm to the protected cavity, while if cohesive foil fillings are soft or defective on the edge decay almost invariably sets in. Miller claims that soft foil has a slightly antiseptic action, which is lost in annealing. It might be said that a not too dense filling would be less likely to dangerously expand or contract under the action of cold or hot drinks. But these explanations do not seem sufficient. The question raised by these facts cannot as yet be satisfactorily answered, and I hope some experiments on this subject, which are now in progress, will give more positive light.

How is it that fillings can leak bacteria and still preserve the teeth? The fundamental principles of dentistry would seem to be shaken and antisepsis set at naught did we not remember that the quantity of bacteria, and the presence or absence of a suitable culture, is a most important factor in the process of decay.

Every man in a state of health, passing through the city, may safely inhale a limited number of smallpox germs, as the tissues and white blood corpuscles will destroy them.

If, however, he works in a hospital or wears the clothing of a smallpox patient, the number of germs taken into the body overcome the hygienic police force, and the man falls sick. The same principle applies to tooth fillings. The tooth can resist the on-

slaught of a few bacteria, and, it would seem, destroy them, as is shown in the case of mummified black decay. Moreover, many bacteria need the presence of air, and all need a constant supply of food. The fillings tend to exclude both of these essentials for bacteriological propagation.

In spite of the fact that a useful filling may leak microörganisms, there should be no pains spared to adapt each plug as accurately as possible. The more perfectly a filling excludes bacteria from a sterilized cavity, the more certain the chances of permanent success.

And after all has been said against filling materials and defective conditions of the saliva, it seems probable that the great majority of our failures arise either from hasty preparation of the cavity or unskillful manipulation.

In my opinion a gold filling, either of soft or cohesive foil, if it has perfect adaptation to good enamel edges, will preserve the tooth as absolutely as if the original enamel remained dense and undecalcified. A filling at best can only restore the tooth to its original condition of perfection, and if the acid and bacteria, which originally created decay, should attack it again, there is no reason why the tooth substance should not disintegrate a second time. This is an unanswerable excuse, and may convince the patient many times, but if decay recur too often in the same place, the coincident is most unfortunate for the dentist.

I am well aware, from my varied experience in dental meetings, that there are numerous practitioners who always do absolutely perfect work, whose hands never tremble from fatigue at the end of a long day, whose weary eyes never by any possibility overlook small concealed portions of decay that ought to be removed. These practitioners will not need the suggestion that I am going to make, because, when no fault can exist, no precaution is necessary; but to that large and most useful class of dentists who, in spite of a personal element of error, engage to relieve pain, preserve teeth, and make mouths wholesome, to them I would say: After the gold filling, approximal or crown, is inserted to the best of their ability, let them polish it down almost flush with the enamel edges and rub in thoroughly a mush of amalgam. When the patient returns they can polish all the amalgam off and finish the filling, which will look untarnished and resemble any ordinary filling except in one particular. Should decay attack its borders, the conscience of the dentist may be quite clear.

Of course the amalgam that fills up any small fissure will shrink, while hot and cold drinks may cause the gold to expand and contract from the cavity walls. But objections to gold filling are now out of date. Gold for upward of fifty years has prevented decay. The teeth can successfully antagonize a small number of bacteria, and it is my opinion and my experience that the edges of a gold filling, guarded with amalgam as described, will successfully prohibit the dangerous entrance of microorganisms. (*Dental Cosmos.*)

PERIDENTAL INFLAMMATION.*

BY H. A. PALMER, D.D.S., JANEVILLE, WIS.

Gentleman of the Society: In presenting this paper I wish it distinctly understood that I am not giving the subject of peridental inflammation a scientific discussion, but would rather bring it before you in a general way, which will provoke discussion and stimulate thought upon this great subject. Since setting myself the task of writing this paper, I have been most thoroughly convinced that there is no question which can come before us as dental practitioners that is of more importance to our patients than this. If we desire to raise dentistry into the realm of prophylactics, instead of permitting it to grovel upon the lower grounds of prosthetic dentistry; if we desire to become known as those who are able to prevent pain and trouble instead of being simply those who are mechanically capable of supplying a part which has been lost through the neglect of the patient, we will have to give this subject a most thorough study, for it is, in a certain sense, the very foundation stone of our structure of mercy and good will to men.

No one knows all about inflammation, and probably no one ever will; but let me say that the more we do know about it, the better dentists we will be, and the higher we will lift our chosen profession in the eyes of men.

Inflammation, in its first stage, is simply an excessive infiltration of blood in the part inflamed. In peridental inflammation something has caused the peridental membrane to become overcharged with blood, and a redness, heat, pain, and swelling are the results.

There may be very little pain in acute inflammation, and other symptoms may differ. The case may proceed so far that active congestion, stagnation, and even suppuration may have taken place, and the patient not be aware that anything very serious is

* Read before the Wisconsin State Dental Society.

going on; while, on the other hand, a very slight inflammation may cause much trouble. If the people knew these things, there would be many more who would have their teeth examined often, that they might prevent the pain and trouble which may follow from a diseased peridental membrane. Indeed, if we as practitioners fully realized the benefit of prevention in this one class of cases, and could impress it upon our patients, especially the younger classes, we would be much more fully accomplishing the objects of dentistry.

Now what are some of the causes of peridental inflammation? There are many, and some of them we are to blame for ourselves, by our carelessness, but they can all be summed up in the one word, "irritant." Inflammation is caused by irritation. Some foreign substance in the blood itself, gases or septic matter from a dead pulp, filling material forced through the apical foramen, a concussion received from a blow, a hard bite or malarticulation from an overfilled tooth, may be the irritating cause. Wedging or separating the teeth may be the cause of irritation.

The careless use of arsenic for devitalizing a pulp may cause inflammation around many teeth. Ligatures or rings of rubber, forgotten after removing the rubber dam, may do the work. Sometimes a little loose amalgam left under the gum margin may cause much trouble. Not long since I reduced quite an extensive inflammation by removing a piece of toothpick which had been forced under the gum and broken off.

These are but a few of the many things which irritate the peridental membrane, and thus leads to inflammation, which is the process that Dame Nature uses to get rid of the irritant. Nature does not like to see things in the wrong place, so when anything enters a membrane that ought not to be there she immediately calls upon the circulatory system to help her right things. This system shuts off the offender from the rest of the body by pouring a quantity of lymph around it. That coagulates, compresses the blood vessels, cuts off nutrition, the parts dying slough away, and if possible carry the offender with them, giving nature a chance to cure the place thus disturbed. Thus we see that inflammation is a means of cure rather than an element of destruction. A segment of tartar, a piece of amalgam, or a ligature of silk has no more business under the gum than a decent dentist who loves his profession and humanity has in a drunk factory, and nature will kindly use heroic efforts to get and keep the offender out, in either case.

Now let us look for a few moments at our duty as dentists in

this matter which is so common and so important. In the first place let me say that it is our duty to use prophylactic means as far as possible, and we can do this only by educating the rising generation in every way known to us. Cleanliness is the greatest preventive known to us. There is nothing more beneficial than to teach a child that he should keep his mouth clean, literally as well as morally. If I can have the care of a child, and he will obey my instructions, I can safely guarantee, barring accidents, that he will never have a case of peridental inflammation.

If that dream given in the *Items* sometime since, where the dreamer was placed forward fifty years, to the time when every child attending school was required to present to the teacher, before entering his classes, a card from some reputable dentist, showing the exact condition of his teeth, could become a reality, there would soon be less of this peridental trouble among the people. A habit of consulting the dentist would ensue, and he could advise preventive measures that would accomplish great good. The question is, how shall we accomplish these things under existing circumstances? Will the Society please answer?

Much can probably be suggested and accomplished. Indeed, I expect that the years of the future will bring about a great change in these things, but inflammation still exists; what shall we do with those cases that come to us in their various stages of development? I think that the very condition of the parts inflamed suggests the remedy. The cause must be removed. If tartar, though it be of ever so small a quantity, be the irritant, remove it, and do it thoroughly. A little good mouth wash, and nature will complete the work. If rock candy or hickory nuts have been the active agents, forbid their farther use, and aid nature a little by applying a counterirritant to the gum. An application of iodine, aconite, and chloroform, followed perhaps by a dental plaster at night, has often reduced inflammation for me. Sometimes a little grinding of the filling or tooth has given relief. If taken in time, a very simple remedy will accomplish the work, but in cases where, through dread caused by ignorance and the vivid imagination of some eloquent friends who have passed through the hands of a quack, the inflammation has passed on beyond the simple state, more heroic measures must be used. It is better for the patient to lose a grinder than to be disfigured for life, or possibly be called to try the realities of the great unseen.

Let me close this paper by suggesting that we give this subject a thorough study; that we teach the people the necessity of cleanliness and the care of the teeth; that whenever a case of peridental inflammation presents itself, remove the cause, assist nature all we can, and in her kindness she will undoubtedly do the rest.—*Dental Review.*

Extracts.

ALABAMA EXEMPTS DENTISTS FROM JURY DUTY.

A LAW was passed in Alabama in 1895 providing that all practicing dentists in the State shall be exempt from jury duty.—*Southern Dental Journal and Luminary.*

ON SOME UNUSUAL FORMS OF ABSCESS.

LATELY we have been brought face to face with some unusual cases of abscess, unusual because the teeth that were pulpless gave rise to but one fistula. One of these came from a central and lateral incisor, and another from both centrals and a lateral. The difficulty of diagnosis was on account of the fact that the fistula seemed to proceed from only one tooth, and there was no apparent reason for supposing that the pulps were dead in the adjacent teeth. Even the electric light failed to prove that the pulps were dead. Recently a case that has passed through the hands of three competent dentists was presented, with an abscess from both roots of an inferior molar. After the roots were cleansed, sterilized, and filled, the fistula, weeks afterwards, had not closed. All of the root filling was removed and the treatment repeated, including the filling of the roots again, but to no purpose. Upon testing the adjacent bicuspid, the pulp was found dead, and the fistula leading from it opened directly through the other opposite the molar. The point we wish to make is that frequently pulps in adjacent teeth are dead without any visible external sign to guide the examiner. In all such cases a careful test of the teeth is necessary to positively cure the fistula, which may be opposite the root of a tooth previously treated. It is apparent that any one might make a mistake and drill out the bony tissue around the apex of a root on the supposition that caries or necrosis were present, when a little careful search would prove that the adjacent tooth being pulpless was the cause of a fistula not closing up after a reasonable lapse of time.

Abscesses are more or less troublesome (alveolar abscesses), and he who thinks that all of them remain in a state of perfect salubrity after treatment is liable to be mistaken ten or fifteen years later, after a single sure shot treatment has been practiced. Incomplete sterilization and incomplete root filling are the barriers to success.—*Editorial in Dental Review.*

Associations.

AMERICAN DENTAL ASSOCIATION.

JAMES TRUMAN, Philadelphia, Pa., President; Thomas Fillebrown, Boston, Mass., First Vice President; W. R. Clifton, Waco, Tex., Second Vice President; George H. Cushing, Chicago, Ill., Recording Secretary; Emma Eames Chase, St. Louis, Mo., Corresponding Secretary; Henry W. Morgan, Nashville, Tenn., Treasurer; S. G. Perry and W. W. Walker, New York, and A. O. Hunt, Chicago, Executive Committee. Next place of meeting, Old Point Comfort, Va., first Tuesday in August.

SOUTHERN DENTAL ASSOCIATION.

THE following officers were elected for the coming year: Dr. W. H. Richards, Knoxville, Tenn., President; Dr. E. P. Beadles, Danville, Va., First Vice President; Dr. A. P. Johnston, Anderson, S. C., Second Vice President; Dr. F. P. Welch, Pensacola, Fla., Third Vice President; Dr. B. D. Brabson, Knoxville, Tenn., Treasurer; Dr. C. L. Alexander, Charlotte, N. C., Corresponding Secretary; Dr. S. W. Foster, Atlanta, Ga., Recording Secretary.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

J. P. GRAY, Nashville, Tenn., President; T. W. Brophy, Chicago, Ill., Vice President; Louis Ottofy, Chicago, Ill., Secretary; Henry W. Morgan, Nashville, Tenn., Treasurer; J. Taft, Thomas Fillebrown, and B. Holly Smith, Executive Committee; Thomas E. Weeks, H. A. Smith, and J. D. Patterson, Ad Interim Committee.

NATIONAL SCHOOL OF DENTAL TECHNICS.

HENRY W. MORGAN, Nashville, Tenn., President; S. H. Guilford, Philadelphia, Pa., Vice President; J. F. Stephen, of Cleveland, O., Secretary and Treasurer; D. M. Cattell, N. S. Hoff, and George H. Wilson, Executive Committee.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

J. T. ABBOT, Manchester, Ia., President; H. B. Noble, Washington, D. C., Vice President; C. A. Meeker, Newark, N. J., Secretary and Treasurer.

NORTH CAROLINA STATE DENTAL ASSOCIATION.

THE twenty-second annual meeting of this organization was held at the charming seaside resort, Morehead City, N. C., June 17-20, inclusive. Although the attendance was small, yet those present, as well as the visiting friends and brethren, had a most enjoyable, and it is to be hoped profitable, time.

Amongst the prominent visitors were noted Drs. B. Holly Smith, Henry W. Morgan, John S. Thompson, H. R. Jarrett, and the venerable Dr. J. R. Woodley, of Norfolk, Va. These gentlemen were cordially welcomed and extended the courtesies of the floor, each responding to the voice of welcome in a pleasant and appropriate manner.

Dr. R. H. Jones, of Winston, N. C., President, called the Association to order, the proceedings being prefaced with prayer by Rev. Dr. H. D. Harper, of Kinston.

Dr. J. S. Thompson, President of the Southern Dental Association, extended a hearty invitation to the members of State Dental Associations to meet with that body at Asheville, N. C., in July.

Next in order followed the address of the President, Dr. R. H. Jones; also the reading of the paper of Dr. H. V. Horton, the special essayist of the occasion. Both were well received, and referred to the proper committee.

Under the subject of "Anæsthesia," Dr. Alexander inquired if any one present had tried cataphoresis; and stated that, if so, he would like to know their experience and opinion with this novel and interesting method. Dr. B. Holly Smith replied that he had been experimentally using cataphoresis for several months past, and with very satisfactory results.

Under the head of "Pathology and Therapeutics," Dr. S. P. Hilliard described his treatment for bleaching teeth with calcium chloride and apple vinegar. His method consisted in keeping the tooth perfectly dry with the rubber dam while operating, and then applying the above agents. This process to be repeated two or three days subsequent, before filling was attempted.

Dr. Henry W. Morgan discussed the value of the microscope as an aid to the dentist in diagnosis. He also gave his opinion of Dr.

Kester's alloy composed of sixty-five per cent silver and thirty-five per cent tin.

Dr. J. R. Osborne stated that he filled teeth with amalgam when he thought they were not strong enough to bear gold, and asked the opinion of the Society regarding the same. In reply Dr. B. Holly Smith stated that he considered any tooth could be filled with gold that was strong enough to stand amalgam. He claimed that he once saw an entire book of gold foil built upon the outside of an egg shell without breaking the same.

It was decided that night sessions be held, and accordingly the Association convened at the hour ordered.

The subject of "Prophylaxis" was announced for consideration. Dr. C. A. Bland read a carefully prepared paper upon the subject, which elicited full and animated discussion, and resulted in the adoption of the most important resolution of the meeting. Dr. J. M. Parker advocated the appointment by the Society of competent dental examiners to look after the teeth of school children, arguing that childhood was really the most important period for dental prophylaxis. Dr. Henry W. Morgan, of Nashville, Tenn., indorsed the idea. He spoke entertainingly of the success of a similar effort in his native State. The State Board of Examiners were appointed by the Tennessee Association to prepare an appropriate essay to be placed in the hands of the public school teachers throughout the State. The matter secured the approval of the State Superintendent of Public Instruction, who attended personally to the distribution of this essay, and ably seconded the efforts of the profession by officially advocating the systematic instruction of the school children regarding the necessity of the proper hygienic care of the teeth and oral cavity. He was gratified to state that, in his opinion, it had already been productive of much benefit. At the conclusion of Dr. Morgan's remarks, Dr. Parker said that he hoped that the grand old State of North Carolina would follow the example of Tennessee, and offered the following resolution, which was unanimously adopted:

Resolved, That the State Board of Dental Examiners, with the President and Secretary, prepare an educational circular letter to be approved by the State Superintendent of Public Instruction, and that a copy of the letter be sent to every teacher in the State, with the request that they read them to their classes several times during each session.

Dr. J. M. Ayer expressed the opinion that mothers were the proper instructors of the children in such matters, and did not be-

lieve the teacher could accomplish much without parental coöperation.

Thursday forenoon was devoted to clinics, under the supervision of Dr. H. D. Harper. Dr. J. M. Ayer made and put on a gold crown and first superior left bicuspid, using the Hollingsworth system. Dr. E. L. Hunter filled a badly diseased devitalized upper molar, demonstrating the fact that many teeth that are consigned to the forceps might be saved for years of usefulness by conservative methods. Dr. J. S. Thompson, of Atlanta, Ga., demonstrated his improved flask for swaging metal plates, crowns, cusps, etc., on plaster models, using very fine gunshot in the counter die, and striking up the plate as usual without ruining the plaster model. Dr. Henry W. Morgan demonstrated the working of Harvard Cement, filling a first lower molar. Also the process of bleaching the teeth with a twenty-five per cent ethereal solution of pyrozone. Dr. H. C. Livermore filled the roots of two central incisors, using gutta-percha points. Dr. B. Holly Smith demonstrated cataphoresis by obtunding a very sensitive lower molar for a dentist, so that it was excavated without pain. Dr. J. E. Wyche filled the roots of first superior bicuspid, using gutta-percha points, demonstrating immediate root filling. Dr. C. L. Alexander filled two compound approximal cavities in right superior bicuspid with gold, making the filling knuckle nicely. He also demonstrated an original and novel method of what he called cast filling—taking an impression of the tooth and casting the filling in the model in the laboratory, then cementing the filling in the cavity in the tooth within the mouth. He claims for it that it is a great labor-saving device.

SECOND DAY—AFTERNOON SESSION.

The special order of business was the election of officers for the ensuing year. The following were chosen: Dr. J. E. Wyche, Greensboro, N. C., President; Dr. Charles A. Bland, Charlotte, N. C., First Vice President; Dr. J. R. Osborne, Shelby, N. C., Second Vice President; Dr. C. W. Bamer, Mt. Airy, N. C., Secretary; Dr. J. W. Hunter, Salem, N. C., Treasurer; Dr. A. C. Livermore, Scotland Neck, N. C., Essayist; Dr. C. L. Alexander, Charlotte, N. C., Superintendent of Clinics.

Next place of meeting, Charlotte, N. C., on the second Wednesday in May, 1897.

Two new members of the Examining Board were to be elected, and Drs. E. L. Hunter and S. P. Hilliard were reelected.

Dr. Alexander made a motion that we have an interstate meeting with Virginia and Maryland and North Carolina. The following were appointed on a committee to arrange for such a meeting: Drs. V. E. Turner, H. D. Harper, and J. H. White.

Dr. W. B. Ramsey was elected to membership in the Association.

THIRD DAY—MORNING SESSION.

The different preparations of gold for filling teeth were discussed by Drs. Woodley, Griffith, Harper, Turner, Parker, Spurgeon, and Wyche.

The subject of "Oral Surgery" was discussed by Drs. Harper, Griffith, Parker, and Wyche.

Dr. S. P. Hilliard read his report of resolutions in memory of Drs. J. H. Holt, A. O'Daniel, and J. E. Freeland, three worthy members who died during the last year.

Dr. Turner offered resolutions of thanks to Mr. W. P. Campbell, the proprietor of the Atlantic Hotel; also to the teachers of North Carolina for the use of their beautiful assembly hall; also to the various railroads in the State for reduced rates.

The President appointed as his Executive Committee Drs. D. E. Everitt, E. J. Tucker, and R. H. Jones; Publishing Committee, Drs. F. S. Harris, E. K. Wright, and C. A. Rominger.

The session closed with a delightful moonlight sail, given to the dentists, their families, and the visitors to the meeting, with compliments of the newly elected President, Dr. J. E. Wyche.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

THE thirteenth annual meeting of the National Association of Dental Faculties was held at the Grand Union Hotel, Saratoga Springs, commencing August 1, 1896.

The following colleges were represented:

Birmingham Dental College, T. M. Allen.

University of Denver, Dental Department, W. E. Griswold.

Columbian University, Dental Department, H. C. Thompson.

National University, Dental Department, J. Roland Walton.

Atlanta Dental College, William Crenshaw.

Southern Medical College, Dental Department, Frank Holland.

Chicago College of Dental Surgery, T. W. Brophy and Louis Ottofy.

Northwestern College of Dental Surgery, L. L. Davis.

Northwestern University Dental School, Theo Menges and George H. Cushing.

Indiana Dental College, G. E. Hunt.

Louisville College of Dentistry, Francis Peabody.

Baltimore College of Dental Surgery, B. Holly Smith.

University of Maryland, Dental Department, F. J. S. Gorgas.

Boston Dental College, J. A. Follett.

Harvard University, Dental Department, Thomas Fillebrown.

University of Michigan, Dental Department, J. Taft.

Detroit College of Medicine, Dental Department, G. S. Shattuck.

University of Minnesota, College of Dentistry, Thomas E. Weeks.

Kansas City Dental College, J. D. Patterson.

Western Dental College, D. J. McMillen.

Missouri Dental College, A. H. Fuller.

University of Buffalo, Dental Department, W. C. Barrett.

New York College of Dentistry, Frank Abbott.

Cincinnati College of Dental Surgery, W. T. McLean.

Ohio College of Dental Surgery, H. A. Smith.

Cleveland University of Medicine and Surgery, Dental Department, S. B. Dewey.

Western Reserve University, Dental Department, H. L. Ambler.

Pennsylvania College of Dental Surgery, C. N. Peirce.

Philadelphia Dental College, T. C. Stellwagen and S. H. Guilford.

University of Pennsylvania, Dental Department, E. C. Kirk.

University of Tennessee, Dental Department, J. P. Gray.

Vanderbilt University, Dental Department, Henry W. Morgan and W. H. Morgan.

University College of Medicine, Dental Department, L. M. Cowardin.

Royal College of Dental Surgeons of Ontario, J. B. Willmott.

The following colleges were elected to membership:

Howard University, Dental Department, Washington, D. C.,

James B. Hodgkin.

Marion Sims College of Medicine, Dental Department, St. Louis, Mo., J. H. Kennerly.

Dental Department of Tennessee Medical College, Knoxville, Tenn., R. N. Kesterson.

The following applications for membership were reported favorably by the Executive Committee for final action next year: University of Omaha, Dental Department, Omaha, Neb.; Ohio Medical University, Dental Department, Columbus, O.; Baltimore Medical

College, Dental Department, Baltimore, Md.; Dental Department of Milwaukee Medical College, Milwaukee, Wis.

The New York Dental School announced its intention to complete its application next year.

The report of the Secretary stated that there were in the United States fifty-three institutions teaching dentistry or conferring the dental degree, as follows: Dental schools in active operation, forty-six; organized during the year, two; in course of organization, one; corporations conferring the dental degree, four. Of the dental colleges, thirty-six were now members of the Association, eight had applications for membership pending, two had signified their intention of applying, and the two newly organized have announced in their catalogues their intention to comply with the rules of the Association.

The report of the Committee on Schools, presented by its Chairman, Dr. Follett, stated that reports had been received from thirty-five schools as to their equipment under the resolution adopted last year. These reports showed that the schools were well provided with lecture rooms, and in most instances with ample laboratory and dispensary accommodations, with sufficient and appropriate appliances. They indicate a broadening in the general course of instruction, as well as fuller courses in all departments. Several colleges have recently added courses in bacteriology and extended their work in histology and pathology in practical ways. During the year 1895-96 the number of matriculates at the thirty-five colleges reporting was 5,532; graduates, 1,363.

Mr. Melville Dewey, Secretary of the Board of Regents of the University of New York, appeared before the Association by invitation of some of the members, and gave a masterly address on the needs of the movement for higher education in professional ranks. Incidentally, Mr. Dewey explained some of the details of the system pursued in New York, and stated that, greatly to the surprise of those in charge of the various professional educational institutions in the State, the number of students had steadily increased since the higher requirements had been put into force by the Board of Regents.

Among the more important legislation enacted by the Association were the following:

REGULATING THE ADMISSION OF STUDENTS.

Preliminary Examination.

The following preliminary examination shall be required of students seeking admission to colleges of this Association:

To the Faculty of

M desires to present self as a candidate for admission to the Course of Dentistry,

He has pursued in this school the branches against which numbers appear, the numbers being the standing upon a scale of 100. Our course requires five recitations or exercises weekly in each branch. Our terms are ten weeks in length.

PRELIMINARY.

2 terms Orthography, standing.	2 terms Geography.
2 terms Reading, standing.	2 terms Grammar.
2 terms Writing.	2 terms History of United States.
2 terms Arithmetic.	

These are required in all cases, and fourteen counts given for the same.

ELECTIVE.

3 terms University Algebra, through Quadratics.	1 term Commercial Arithmetic.
3 terms Geometry, Plane and Solid.	2 terms Astronomy.
2 terms Physiology.	2 terms Geology.
2 terms Physical Geography.	2 terms Natural History.
1 term Botany, with analysis of forty plants.	1 term Political Economy.
3 terms General History.	2 terms Drawing.
3 terms Natural Philosophy.	3 terms German.
3 terms English Literature.	3 terms Greek.
2 terms Civil Government.	3 terms Latin Reader, Cæsar.
2 terms Rhetoric.	3 terms Cicero, four orations.
2 terms History of England.	3 terms Virgil, six books.
3 terms American Literature.	1 term Bookkeeping.
3 terms Chemistry.	3 terms French.
	2 terms Manual Training.

(After session of 1901-02, United States History becomes elective, and entitles to 2 credits.)

FOR THE SESSION OF 1897-98.

Preliminary.....	14 counts.
Elective.....	18 counts.
Total.....	32

FOR THE SESSION OF 1898-99, 1899-1900.

Preliminary.....	14 counts.
Elective.....	27 counts.
Total.....	41

FOR THE SESSION OF 1900-01.

Preliminary.....	14 counts.
Elective.....	36 counts.
Total.....	50

For the session of 1901-02 and thereafter, no Preliminary credits; forty-eight credits from the studies classed as elective.

When the text-book mentioned has not been completed, the exact amount of work done should be stated.

The candidate above named is recommended as of good moral character, studious habits, and, judging from the past records, able to carry forward the work of a dental college course.

The rules for the admission of students take effect with the session of 1897-98.

....., Principal.

ADMISSION TO ADVANCED GRADES ON CERTIFICATES.

The colleges of this Association may receive into the advanced grades of Juniors and Seniors only such students as hold certificates of having passed examinations in the studies of the Freshman or Junior grades respectively, such certificates to be pledges to any college of the Association to whom the holders may apply that the requisite number of terms have been spent in the institutions by which the certificates were issued.

INTERMEDIATE CERTIFICATE.

Place, Date,

This certifies that has been a member of the class in the during the term of

He was examined at the close of the term in the required studies, as stated herein, and is entitled to enter the

Freshman Year.

[List of Studies.]

Junior Year.

[List of Studies.]

This certificate shall, by correspondence, be verified by the Dean of the college by which it was issued. Without such certificate no student shall be received by any college of this Association for admission to the advanced grade, except on such conditions as would have been imposed by the original school, and these to be ascertained by conference with the school from whence he came.

LIMITING THE TIME FOR THE RECEPTION OF STUDENTS.

No member of this Association shall give credit for a full course to students admitted later than ten days after the opening day of the session, as published in the announcement.

In case one is prevented by sickness, properly certified by a reputable practicing physician, from complying with the foregoing rule, the time of admission shall not be later than twenty days from the opening day.

In cases where a regularly matriculated student, on account of illness, financial conditions, or other sufficient causes, abandons his studies for a time, he may reenter his college at the same or a subsequent session, or where under similar circumstances he may desire to enter another college, then with the consent of both Deans he may be transferred, but in neither case shall he receive credit for a full year unless he has attended not less than seventy-five per cent of a six months' course of lectures.

ATTENDANCE, EXAMINATIONS.

Attendance upon three full courses of not less than six months each in

separate academic years shall be required before examination for graduation. The year shall be understood to commence August 1, and end the following July 31.

Beginning with the session of 1896-97, the examinations conducted by the colleges of this Association shall be in the English language only.

A student who is suspended or expelled for cause from any college of this Association shall not be received by any other college during that current session. In case the action of the first college is expulsion, the student shall not be given credit at any time for the course from which he was expelled. Any college suspending any student shall at once notify all other members of this Association of its action.

APPLICATIONS FOR MEMBERSHIP.

Applications for membership in this Association shall be made in writing, favorably indorsed by the Faculties of two or more colleges of this Association and the Board of Dental Examiners of the State in which it is located.

Such application shall then be referred to a special committee of three, which shall be appointed by the Chair upon each application. The duty of this committee shall be to visit the school applying during its session, personally examine its facilities for teaching, methods of instruction, and efficiency of the Faculty, and report to the Executive Committee, which report shall, if favorable, be acted upon.

Each application shall be accompanied by a sum of money sufficient to defray the expenses of the special committee.

The constitution was so amended that hereafter it will require a two-thirds vote instead of a majority to elect new members.

The following resolution, offered by Dr. Peirce, was, on motion, adopted:

Whereas, in view of various reports being circulated derogatory to the character of certain schools without any one being willing to prefer charges sustaining such statements,

Resolved, That the Executive Committee be and is hereby authorized to exercise full power to investigate all such innuendoes or charges by visiting the school or schools, or authorizing some one to perform this duty; summoning witnesses, etc., in order that all such statements may be sustained or proven false.

Resolved, That a sum to be determined by the officers (President, Secretary, and Treasurer) be and is hereby appropriated for the purpose of paying expenses essential to the carrying out of the provisions of the above resolution.

The following communication from the National Association of Dental Examiners was read, and on motion adopted:

Resolved, That this Association requests the National Association of Dental Faculties to enact a rule prohibiting colleges from receiving beneficiary students recommended by State boards and associations.

The following, offered by Dr. Abbott, was adopted;

Resolved, That the committee of three appointed by the Chair to report on applications for membership shall determine and report to this Association at its next meeting the minimum requirements of such colleges as desire to become members of this Association as to length of course, plant, equipment, facilities for teaching, and the number and efficiency of its Faculty.

Dr. Brophy offered the following, which was adopted:

Resolved, That a graduate of a recognized dental college, who applies to a college of this Association for the degree of Doctor of Dental Surgery or Doctor of Dental Medicine, shall complete one full course of instruction in said college, and comply with all other requirements of the Senior class.

The following, offered by Dr. Barrett, lie over until next year for final action:

Resolved, That after the regular session of 1897-98 the annual college term for the members of this Association shall be seven full months.

Resolved, That it is advisable that the National Association of Dental Faculties in future meet in connection with the National School of Dental Techniques at a time of year when the colleges are in session, and before the time for the issuance of the annual catalogues.

A committee, consisting of Drs. Patterson, Henry W. Morgan, and Kirk, appointed to consider the advisability of adopting the academic cap and gown for Commencement Day, reported in favor of adopting the intercollegiate system, and in favor of lilac as the distinguishing color for dental schools. Laid over till next year.

The following were elected officers for the ensuing year: J. P. Gray, Nashville, Tenn., President; Truman W. Brophy, Chicago, Ill., Vice President; Louis Ottofy, Chicago, Ill., Secretary; Henry W. Morgan, Nashville, Tenn., Treasurer; J. Taft, Cincinnati, O., Thomas Fillebrown, Boston, Mass., and B. Holly Smith, Baltimore, Md., Executive Committee; H. A. Smith, Cincinnati, O., Thomas E. Weeks, Minneapolis, Minn., and J. D. Patterson, Kansas City, Mo., Ad Interim Committee.

The newly elected officers were installed, and the President announced the standing committees as follows: S. H. Guilford, Philadelphia, Pa., J. B. Willmott, Toronto, Canada, Theodore Menges, Chicago, Ill., L. M. Cowardin, Richmond, Va., and James Truman, Philadelphia, Pa., Committee on Text-books; J. A. Follett, Boston, Mass., G. E. Hunt, Indianapolis, Ind., C. N. Peirce, Philadelphia, Pa., A. H. Fuller, St. Louis, Mo., and D. J. McMillen, Kansas City, Mo., Committee on Schools.

Adjourned.—*Dental Cosmos.*

SOUTHERN DENTAL ASSOCIATION.

IT was our pleasure to be in attendance at the Twenty-seventh Annual Session of the Southern Dental Association, which was held in the ballroom of the Battery Park Hotel, in Asheville, N. C., commencing Tuesday, July 28. There was a large attendance, and the meeting was pleasant and profitable.

Lawrence P. McLoud, a citizen of Asheville, made the welcome address, extracts from which are as follows:

"Mr. Chairman, Ladies and Gentlemen, and Dentists: A very pleasant duty is mine this morning, for to me has been assigned the duty of giving expression to the welcome which the dentists of Asheville, the citizens of Asheville, and the city of Asheville extend to you. I am not a dentist; I am a banker. I am not a tooth puller; I am a leg puller.

"Gentlemen, I assure you that you are heartily and sincerely welcome. We welcome you, though strangers, for we know you must be gentlemen. We can only judge you by the standard of the dentists of our own city, and I want to tell you that no class of our citizens stand higher than our dentists, either as gentlemen or as otherwise useful members of the community. We are not afraid of you. We have had all sorts of people meet here. We have entertained Democratic and Republican conventions here, and when they had left us our barrooms still had enough stock to do business on. We have entertained an Undertakers' convention, and after the gallant funeral knights had separated and gone our doctors still had enough patients to keep them from starving, and still pursued their time-honored career of working for the undertakers. We have entertained Methodist Conferences, and after the departure of the bishop and preachers, the deacons and elders and laymen, we still had chickens to sell, and the lusty rooster, still as of old, in stentorian crows announced the dawning day. And we expect that after your departure from our city, carrying away with you, we trust, bright and happy memories of days pleasantly spent, that some poor devils will even then have the toothache. . . .

"Get to your work. Enjoy yourselves. Make your visit here a visit long to be remembered. And when you go back to your homes, whether they be among the orange groves and bananas of Florida, or whether among the sugar cane patches of Louisiana or the wild prairies of Texas or in the iron and coal mines of Alabama or the sweet potato hills or watermelon vines of Georgia, wherever your homes may be, I want you to tell your friends that you came

to Asheville, that you have seen the grandest scenery that this continent can afford. . . . Tell them that you have found here, shut off from the strife and turmoil of the outer world, a community of peace and prosperity and happiness; that you found no gold bugs and no silver bugs, but all sound money men; that you found a hearty and warm welcome, and that the people of Asheville were really glad to see you, even if you are dentists."

The response to the address of welcome was made by Dr. J. Y. Crawford, of Nashville, Tenn., President of the American Dental Association, who was introduced by Dr. Thompson as the "golden-tongued" orator of the dental profession.

He said that the gentleman to whose address of welcome he had been selected to respond had portrayed the dentistry of the fourteenth century, perhaps, or of some remoter date, but his portrayal bore no resemblance to the enlightened dental surgery of the nineteenth century. The surgeon's table has been robbed of its horrors by dentistry, for it is to Horace Wells, a dentist of Hartford, Conn., that suffering humanity is indebted for the great gift of anæsthetics, by which the operations, not only of dental surgery, but even the major operations of surgery are performed while the patient lies calmly sleeping. . . . The great art of dental surgery has done more to add grace to the span of human life than any other branch of surgery. The mouth is the great laboratory of the human stomach; and if it is not in condition to fully perform its functions, the whole body suffers.

The growth of the art of dentistry is a compliance with the law of demand and supply—it is due to the universal prevalence of disease in the oral cavity.

Why does America lead the world in dentistry? Because no people in the world are so seriously affected with disease of the oral cavity as the American people. And this is the country that gave birth to the first dental college, to the first dental journal, to the first dental society. By our present system of education the mental is cultivated at the expense of the physical, and, as the result, fully ninety-five per cent of the American scholastic population is afflicted with dental caries. Is it not time to sound the alarm? Is it not a dangerous omen when the nervous system is so preyed upon that the sensitive ganglia in the teeth become the center of reflex nervous affection, and the teeth are rotted out before they have completed their growth? The government should not undertake to do for the child what the mother should do for it.

The child should stay with its mother till it knows right from wrong. The kindergarten system breeds death and disease; it rots out all the teeth; that one idea has destroyed more teeth than any other one factor. In Egypt it is proverbial that the children all have sore eyes. In America the school children all have rotten teeth. It has been said that there are not enough dentists in the civilized world to pull all the tartar off the American teeth, let alone the rottenness; and there is no apology, no excuse, for this condition of affairs.

We have come here to do something for the advancement of the greatest art of the century. If we are derelict in our duty, if we fall short in the accomplishment of our great aims, the civilized world will be injured in proportion to our shortcomings.

The President, Dr. John S. Thompson, of Atlanta, delivered his annual address. He spoke of the growth of the Association during the past four years, saying that this country now stands in the front rank of dental surgery. "Fifteen years ago," the speaker said, "our Society met in this city. A great change has come about since that time, for the Asheville of to-day is not what it was then. Then a member of the Association left the city because he could not find a bath room in town. There is no reason now, however, why our stay should not be a pleasant one."

Drs. J. Y. Crawford, B. D. Brabson, and T. J. Colvert were appointed a committee of three to consider the scientific part of the President's address.

A communication was read from Dr. H. A. Lowrance, Treasurer of the Association, in which he expressed regret at his inability to be present, and tendered his resignation. The Association voted to accept the same, and elected Dr. B. D. Brabson to that office.

It was with deep regret that members accepted the resignation of Dr. Lowrance, of Athens, Ga. There is no more highly esteemed member of the profession than Dr. Lowrance. He has been Treasurer of the Southern Dental Association for a number of years, and has ever proved a faithful officer. He has been Treasurer of the Georgia State Dental Society also, from its first organization, and still holds the office. Should he at any time decline reëlection, so popular and faithful is he, that the members would arise in rebellion against such a course on his part.

Dr. C. L. Alexander, of Charlotte, read a valuable paper exhibiting specimens and cuts, entitled "Cast Metal Fillings." The paper elicited discussion, and consumed most of the afternoon session.

This is a method of making a filling of solid gold outside the jaw and cementing the same to the tooth, instead of the tedious process of filling the teeth.

One afternoon was set apart for the members to visit the Vanderbilt grounds.

The Chairman of the Committee on Consolidation of the Southern and American Dental Associations made a report. It was discussed at some length, and finally referred back to the committee with instructions to report at the next annual meeting, after further conference with the committee from the American Association.

Dr. W. H. Richards, of Knoxville, Tenn., gave a lecture with photographic illustrations of a method he has devised of reproducing the exact form of the pulp of the tooth, in extracted teeth, for purposes of a more exact study of this portion of the tooth, and its location in different classes of teeth. Dr. Richards had expected to give a stereopticon exhibit of his illustrations, but was disappointed in the lantern he had expected to have.

Dr. Ed Kells, of New Orleans, with X rays apparatus, gave some very interesting and instructive exhibits. He also demonstrated in clinic the use of the cataphoric method of allaying sensitiveness in excavating cavities, etc.

Dr. Freidricks, of New Orleans, read an instructive paper on hygiene.

Lengthy discussions on various subjects were freely indulged in.

The hour for selecting the place for the next session, and also of electing officers for the ensuing year, having arrived, St. Augustine, Fla., was chosen on the first ballot; but because of the fact that the next annual meeting must be held in midsummer, the matter was reconsidered, and Old Point Comfort chosen, the time being the first Tuesday in August, 1897.

The Association elected the following officers: Dr. W. H. Richards, Knoxville, Tenn., President; Dr. E. P. Beadles, Danville, Va., First Vice President; Dr. A. P. Johnston, Anderson, S. C., Second Vice President; Dr. L. P. Welch, Pensacola, Fla., Third Vice President; Dr. B. D. Brabson, Knoxville, Tenn., Treasurer; Dr. C. L. Alexander, Charlotte, N. C., Corresponding Secretary; Dr. S. W. Foster, Atlanta, Ga., Recording Secretary.

After passing a vote of thanks to Dr. C. E. Kells for his exhibits of the Roentgen or X rays, the S. S. White Dental Manufacturing Company for their assistance in clinics, the manager of the Battery Park Hotel for his courteous and cordial entertainment of the Association, the local dentists constituting the Committee of Arrangements and Reception for their attention, the Association adjourned to meet at Old Point Comfort, Va., in August, 1897.—*Southern Dental Journal and Luminary.*

Editorial.

CATAPHORESIS.

THIS is the hobby of the hour. Look out, brother! Next spring's crop of dead teeth may be somewhat greater than last. Look well over your silhouettes, young man. Note carefully the sizes and shapes of the pulp chambers, the irregularities that exist in teeth having high cusps and that are deeply grooved.

We are pleased to report satisfactory progress in the treatment of devitalized teeth with the cataphoric apparatus. There is every reason to hope for as good results in forcing through the tooth antiseptic agents as anæsthetic agents, the same precautions having been taken. But when used to induce anæsthesia, be very careful to what depth you go, and make liberal use of a good, *nonconducting* cement after. For painless extirpation, drill almost to the pulp, use a saturated solution of cocaine, give plenty of time at as great a voltage as the patient can stand, and the result will be most gratifying. After the usual surgical procedure with electric current, force in your antiseptic and fill immediately.

STAMMERING OR STUTTERING.

THIS terrible affliction is generally regarded by the laity as a manifestation of nervous derangement or a sequence. It is nothing, however, but a habit! We made a visit recently to a "voice school" at Memphis, Tenn., where Rev. W. G. Randolph demonstrated most clearly while giving a lesson to his class that this was a fact, by proving that even bad stammerers could not stutter when they observed instructions. It is a marvel how rapidly the habit can be overcome, and there is no reason why any human being should go through life with such an awful affliction. Even the most desperate cases yield in a short time, and the gratitude of those who have had their tongues set free is worth more than a king's ransom.

THE NORTH CAROLINA DENTAL ASSOCIATION.

IN June this body spent three days at Morehead City in earnest work and delightful social intercourse, and it was never our privilege to attend a meeting where there was more harmony and general good feeling throughout. Most of the papers we publish in this number.

The presence of more than one-half of the membership is evidence of the interest the dentists of the old North State take in its work. Aside from the inconvenience of getting to Morehead City, it is a

most attractive place. It is far famed as a resort of the lover of boating and fishing. Nowhere on the Atlantic coast can these sports be so successfully indulged. In March, 1895, within ten days, we were told that six hundred tons of fish were shipped.

The State Board of Examiners held its annual meeting at the same time. Several candidates failed to obtain the much-coveted license.

TENNESSEEANS HONORED.

DR. J. Y. CRAWFORD, of Nashville, was the retiring President of the American Dental Association at the late meeting at Saratoga Springs, having served that body for two consecutive terms. DR. H. E. BEACH, of Clarksville, was the presiding officer of the Southern Dental Association at its meeting held at Atlanta last November, DR. HENRY W. MORGAN, of Nashville, was elected President of the National School of Dental Technique, and also reëlected Treasurer of the American Dental Association at the Saratoga meeting. DR. J. P. GRAY, of Nashville, was chosen President of the National Association of Dental Faculties. DR. W. H. RICHARDS, of Knoxville, was elected President of the Southern Dental Association, and DR. B. D. BRABSON, of the same city, Treasurer of said organization.

Verily Tennessee has been generously preferred in the conferment of these distinguished offices, and we confidently predict that these gentlemen will not only wear their honors gracefully, but will reflect credit upon the wisdom of these Associations in their bestowal.

A. M.

THE AMERICAN AND SOUTHERN DENTAL ASSOCIATIONS.

THE question of the union of these associations, though not discussed in open meetings at Saratoga, was the subject of much comment by those who attended the associations held there in August. The almost unanimous vote of the American to meet with the Southern at Old Point Comfort, Va., next year showed clearly the wish of the members for such a result. The prevailing opinion appeared to be that if the committees could come to an agreement by which the fusion could be made, it would be greatly to the advantage of the profession.

The advantages of a union on a plan that would secure alternate meetings held in the eastern, western, and southern sections will be a saving of time and expense, increased attendance, concentration of work to bring the profession to a more fraternal basis by eliminating all sectionalism and an equal distribution of honors. Besides these it will afford the South and West an opportunity of becoming better acquainted with those connected in various ways with educational work.

That the movement was born of the purest motives no one can doubt. The desire to unite two great associations, and thus form an organization that could voice the sentiments of American den-

tists, the strength and character of which would wield an influence for the general good not yet reached by the older bodies, is most worthy and almost unanimously indorsed.

That there should be but one representative body of dentists in the United States, in which should be found the rank and file of the profession, is the opinion of every one.

Opposition to the proposal for sentimental reasons is not to be thought of when there is an opportunity to do a great work for the future best interests of the profession, and this feeling must govern the actions of all.

Those who make the greatest sacrifices to attend dental associations do so largely for other than personal reasons, and while it would be pleasant to do more of this work, conflicting interests frequently make it impossible.

To those who may antagonize the movement we would say, let not prejudice misguide you in the matter. Look beyond the present. Leave no heritage of division in the ranks of American dentistry for which you are personally responsible.

The reasons which led to the organization of the Southern Dental Association no longer exist. It has a glorious history, having accomplished a noble work, and the names of the men who have zealously fostered it as an institution of worth and merit will continue to live.

MARRIAGE NOTICE.

DR. H. A. MAGRUDER, a recent Vanderbilt dentist, now resident at Goldthwaite, Tex., was married on September 2, 1896, to Miss Mary Maze, of San Angelo, Tex.

BOOK NOTICE.

AN AMERICAN TEXT-BOOK OF PHYSIOLOGY. Edited by Prof. William H. Howell, Ph.D., M.D., of Johns Hopkins University. Philadelphia: W. B. Saunders.

This work, just issued, is a typical American product, the result of the brilliant contributions of some of the foremost physiologists and teachers of America, amongst whom we mention Profs. H. P. Bowditch, of Harvard University; E. T. Reichart, of the University of Pennsylvania; Henry H. Donaldson, of the University of Chicago; Graham Lusk, of Yale; Walter P. Lombard, of the University of Michigan; and other eminent writers and teachers in this important field. We have examined this book carefully, and unhesitatingly pronounce it a work of superior excellence. The text is concise and lucid, the illustrations clear and ample, the typographical execution is of the best character, and it is altogether the finest exposition of the present *status* of physiology that we have ever seen. We cheerfully commend it to the profession, as well as to all students of medicine and dentistry.

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The Dental Headlight,



A Quarterly Record of Den-
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Interest of the Profession.

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Edited by ——————

JAMES A. DALE, D.D.S.,
AMBROSE MORRISON, M.D.



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Communications, original contributions intended for publication in THE HEADLIGHT, and exchanges should be directed to Dr. James A. Dale, 217 North Summer Street; or Dr. Ambrose Morrison, Jackson Building.

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T·H·E

DENTAL HEADLIGHT.

VOL. 18.

NASHVILLE, TENN., JANUARY, 1897.

No. 1.

Original Communications.

DENTAL EDUCATION.

BY T. C. WEST, D.D.S., NATCHEZ, MISS.

THE subject of dental education is certainly one of vital interest and importance to us in this rapidly advancing age, and when—taking a backward glance over the past few years—we consider the advancements that have been made along this line, should we not feel justly proud of our success?

But, Mr. President and gentlemen, the question in my mind is: Are these advancements, of which we are so justly proud, resting upon the proper foundation? or, Is dental legislation forcing us to make these changes? It is true we have laws in almost all of our states that require and demand a certain amount of training, both intellectual and mechanical, before one is allowed to practice dentistry; and in order to meet this demand, caused by our dental legislation, our colleges have increased the length of their course and have become more rigid in their requirements for both matriculation and graduation. Still each year numbers of their graduates fail to pass our Dental Boards, and numbers of those who do pass fall far short of elevating their profession or reflecting credit upon the college from which they were graduated; while we, who are but laymen, if I may so speak, in the profession, lay at the door of the colleges the blame of the discredit which these men bring upon it.

Now I have no connection with the colleges, consequently no ax to grind; and while admitting that to a certain extent the colleges are at fault, still I am a friend to them, and believe that they are friends of ours. I believe that those present who are connected with

college work will indorse me when I say that they are not only willing, but anxious, to meet any requirement we may demand that will bring about the proper change, and solve this all-absorbing question of how to reach a higher standard of dental education.

If we should place ourselves in the position of some of the instructors in our dental schools, and know, as they do, the exact amount of mental training that some of the applicants for matriculation have had, we would open our eyes in astonishment, and wonder that they accomplish as much as they do from the material they have to work upon. The foundation is not there on which to build, and it is utterly impossible to build a tower of learning of any height in the minds of men without their first having had the foundation properly laid.

Judging from the papers that are read and the discussions following, it seems to me that many of us fail to comprehend the meaning of the term "dental education" in its broadest sense, and that we are directing our thoughts entirely too much to dental education for men, and not enough to the education of men for dentists. Let me endeavor to explain this distinction.

In one case, take a boy from between the plow handles, from the mechanic's bench, or from behind the counter, who has not been inside of a schoolroom since he was ten years old or thereabouts, and send him to a college to receive a dental education, and upon returning home he makes application to our Board of Dental Examiners for a license to practice the profession, to perfect himself in which he has spent the whole of eighteen months. He fails to come up to the required standard, and *we* wonder and *he* wonders how it is that a man who has taken three courses—and sometimes they apply after one course—in a reputable dental college can possibly fail to pass a State Board of Dental Examiners. We say to the colleges, "You should raise your standard in order to meet the requirements of our law;" to which the colleges should make answer, "You raise your boys to the proper standard before sending them to us." So much for dental education for a man.

On the other hand, the education of a man for a dentist should be begun while he is yet in his cradle, and his different faculties so developed and trained by the time he is ready to receive the final instructions in a dental college that will fit him to become a true professional man that he will be able at once to receive and mentally digest what is taught him, instead of spending his entire time in training his mind to receive the impressions that should be made upon it.

There never were truer words spoken than those of Henry Ward Beecher, upon being asked at what time in a boy's life should his education begin; he answered: "With his grandfather."

If we would but take the word "education" in its true meaning, we would find that it includes the entire course of one's training, moral, physical, and intellectual; and is it not plain to us from this meaning that, for one to reap the full benefits of such training, and receive what we call an education, it necessitates the cultivation of more than the intellectual powers, and that the word "educate," meaning to bring up, makes plain to us the time at which such training or education should begin? In the cultivation of the physical part of our being, would it not be far better to begin while the muscles are supple and tender and easy to manage than to wait until they become hardened and stiff, and to a certain extent unmanageable?

Again, is not the brain of a child, while in that plastic condition, more susceptible to impressions that come from without, and consequently easier to develop? This fact was deeply impressed upon me recently by a lecture to which I had the pleasure of listening, by Prof. De Motte, on character building. The lecturer illustrated most beautifully and conclusively, by the aid of stereopticon views, just how early impressions were made upon the brain, and how important it was that these impressions be of the right kind, it being much more difficult than we might suppose to rid ourselves of what we are pleased to call *habit*. As an illustration we will compare the brain of a child to a bowl of freshly mixed plaster of Paris. Now, do we not see how perfectly easy it is to make an impression with but a touch of the finger in this plastic mass, and how deep and lasting it may become by a repetition of this touch? How perfectly easy it is to remove and smooth out, as it were, the impression made while the mass is still plastic! As the mixture hardens, how much more difficult it is to accomplish either, especially as to removing the impression made, and in time we find it impossible to either cause an indentation or remove one that has been made. Just so it is with the brain. While the child is young, impressions upon the very tissue itself are easily made and as easily effaced; but if allowed to remain until the matter in the brain is more fully developed, we readily see what the sequence will be—hard to impress, and harder still to efface. Thus habits are formed by these early impressions, whether for good or evil, that remain with us to the end of our days.

Now, gentlemen of the Southern Dental Association, I would ask, with all earnestness, What means this constant cry for higher dental education? Is it for the purpose of developing more fully the intellectual powers in order that we may master the subjects pertaining to our work in a more intelligent and theoretical way? or is it to bring into the field men who possess more mechanical ingenuity and manipulative skill? and by bringing either one or both of these classes into the profession do we expect to elevate and preserve the dignity that we as a profession so justly deserve?

I should assert that to reach the loftiest peak imaginable in these two directions is not all that we need, for even knowledge and manipulative skill cannot make the ideal professional man whom we so desire to see; but there is one thing that that man should possess, in connection with the other two achievements mentioned, which can and will make him the ideal man whom we should expect to see from this higher education, and that is *character*.

Give us men of character, whose ideas as regards professional courtesies one to another, as well as duties to their patients and to their fellow-men, are so pure that they will not stoop to what we call "violation of the code of ethics." Lay the foundation while the child is in his cradle; begin then to form his character, so that in after years he will reflect credit upon his profession, be a blessing to all who may come under his professional care, an honor to his country, and be worthy of the name the all-wise Creator has given him—man.

And now, to accomplish all this will require the united efforts of the Board of Dental Examiners, the National Association of Dental Faculties, the colleges, and the profession at large, each having their specific duty to perform, all assuming the duty of educating the public to an appreciation of the services of a truly scientific, skillful, and honorable dentist, who depends for a portion of his patronage upon what he really is, and not upon what he pretends to be through flaming advertisements.

EXTRACTS FROM THE PRESIDENTIAL ADDRESS.*

BY J. Y. CRAWFORD, M.D., D.D.S.

Gentlemen: It is made my duty as presiding officer of the Academy to present this the annual address upon some subject pertaining to the great field of medical and surgical science.

* Read at Nashville Academy of Medicine April 5, 1896.

I deem it proper to first express to you my sincere thanks for the honor you conferred upon me when you called upon me to preside over the deliberations of your society. There has much of interest occurred during the year. The amount of instruction and advancement cannot be better appreciated by any one than the presiding officer. . . . As retiring President of the academy, I beg leave to extend my thanks especially to those gentlemen not members of this society for their valuable contributions.

The formation of a bill to submit to the City Council, looking to the purification of the milk supply of our city as a preventive sanitary measure, is deserving of special recognition and support; and it is to be hoped that every member of this academy will do what he can to secure its passage by the City Council, in order that it may become an efficient law upon our statute books for the good of the whole population.

While the attendance of the academy has not been uniformly as large as might be desired, yet I believe that there have not been any of the meetings missed. Our representatives have been sent as delegates to the "American Medical Association" and other delegated representative bodies that have occurred during the year. All such delegates have performed their duties with satisfaction to the academy and credit to themselves. . . .

In addition to this general *résumé* made of this year's work, from a scientific and business standpoint, I beg leave to call your attention as a body of medical men to the question of popular education, and to respectfully suggest that there are some radical wrongs in our educational system which should be corrected; and as the greatest injuries result from the many mistaken notions in reference to the subject affecting the health of the scholastic population of our city (about twenty thousand in number at the outside), I will presume to say that no one should be regarded as higher authority upon the subject of education than the *doctors* of our community. In all ages and in all systems of philosophy and religion the question of education has been an important one. Whether you view it from an intellectual, moral, or physical standpoint, it is and has always been a question of paramount importance. If there ever has or will be a time when the physical aspect of the question demands more consideration than either of the other two propositions, it is certainly now.

To bring before you more fully my idea, after long and careful

study, I am fully satisfied that the crying evil of our present system of popular education is a law permitting our children to enter school too early in life. The fearful mortality in the scholastic population of our city, resulting from contagious and infectious diseases, is greatly augmented as a result of the notion that the child is a fit subject for the crowded study halls of our institutions of learning at so tender an age. There is no more argument in favor of putting a child to school at seven years of age than there is that all the children of the community should as early in life as possible undergo the ordeal of having all the contagious and infectious diseases that man is subject to, that results in bringing about immunity from a second attack when they are older. A reference to the fearful per cent of mortality resulting from the recent almost unparalleled epidemic of *measles* in this community is sufficient proof to overthrow the old stereotyped notion that it is best for all children born into the world to have all those so-called minor communicable diseases early in life.

The present *status* of public sentiment upon this question obtains reënforcement in many instances by the unphilosophical practitioner of medicine who supports the theory that it is proper and right to subject little children to all these maladies, simply because they become immune thereafter. In this general way argument after argument can be produced to demonstrate the truth of the proposition: the result of putting our children to school too early in life could be made without limit irrefutable. But to specialize, we feel certain that the practitioner of ophthalmology would testify that many of the imperfections in vision, and the premature impairment of the organs of vision, result from the overstraining of the eyes of our young people at school, as well as much of the diseased phenomena of the nervous system, as indicated by eye strain and other deviations of normal vision. I will venture the assertion that if the doctor of the moral man would look into the causation, so to speak, of many of the moral maladies that afflict the human family we are satisfied that a flood of light and information would be thrown upon this very important proposition. If patriotic and country-loving statesmen would investigate carefully the source and origin of many influences which stand as a constant menace to the public welfare, they would find a satisfactory solution of the many grave evils that culminate in threatening the integrity of our free institutions. In fact, gentlemen, from a reasonable and philosophical standpoint, I am fully persuaded that the development and augmentation of pater-

nalism in its most objectionable form, in a governmental sense, has its origin here more than in any other place.

As a representative of dental surgery, or the representative of the so-called dental profession, I state boldly, without the fear of successful contradiction, that the presence of the children of our country in our public schools, under ten years of age, is doing more harm than any one evil that exists in our common country. It is not only impairing the physical organism, but it is lessening the mental capabilities of our people, as a nation, to grapple with the serious problems of life. While I am in favor of liberal education and higher education and all the departments of learning, the aggregate results that tend to the betterment of the condition of the human family, I must say that the vague and vain idea of providing a classical education for the whole people is contrary to the divine order of things, and results in an irreparable injury to a very large per cent of the human family, in every particular.

By nature the human being is supposed to be provided with a masticating apparatus, at sixteen to twenty months of age, to perform the work of masticating his food sufficiently for the demands of his organism. The first of the primary masticating apparatus increases and improves in its capacity until its maximum efficiency is reached about the end of the fourth year in the individual's life, at which time it begins to depreciate physiologically in its efficiency until about the tenth year of the individual's life, when its greatest inefficiency, comparatively speaking, is attained, at which time the individual is about ready to make a change, or to shift from the first or primary masticating apparatus to the second or permanent apparatus of mastication. All of these physiological changes or variations necessitate or imply, to a greater or less extent, the change of diet, which is at all times more or less hazardous when we take into consideration the extra susceptibility of the alimentary canal to various zymotic and infectious diseases, as well as the peculiar impressible condition of the nervous system of the human organism at this time of life. In addition to the natural physiological conditions that take place at this time of life, it is lamentable to state that the additional incapacity of our children to properly masticate their food results from the almost universal presence of disease of the teeth of our scholastic population.

The want of solicitude on the part of parents, physicians—in fact, the whole people—in regard to the present condition or *status* of the health of the mouths of our children, is one of the unaccountable

things of the day. Families who attempt to have proper attention given to the mouths and teeth of their children are often thwarted in their efforts as the result of the mistake of entering the child in school, and especially at too early an age.

Perhaps all are ready to ask: "What is the remedy for the existing evils?" If it were not for the mistakes of the past, we would not need the remedy. If we could give up the false notions of "women suffrage," women doctors, women preachers, women lawyers, or, in other words, quit attempting to make men out of women and women out of men, we would not need a remedy; but in order to meet a condition, and not a theory, I would suggest that the money expended in building and applied to that portion of our scholastic population under ten years of age be withdrawn from the public school fund and invested in nursery homes for the poor children of all parents who are compelled to be away from home continuously all the working hours, and in addition to caring for them to give them one good, properly prepared meal, thus giving them an object lesson in "dietetics" early in life. One of the great causes of diseases with the poor, and the poverty of living with these diseases, is attributable to ignorance upon the subject of cooking and preparing the food properly.

Selections.

DENTAL EDUCATION OF THE PUBLIC.*

BY ANDREW J. FLANAGAN, D.D.S., SPRINGFIELD, MASS.

HUMANITY with all its advancement has not been able to make any individual independent of others in his existence. For the last few years we have all noticed in the various journals the plea for education of the public in the care of the mouth and associated parts, but more particularly the discussion of what a dentist is supposed to know and do for the public. In dentistry, as in most callings, a clientele can be separated into many grades of intelligence, and that grade the members of which are intelligent enough to coöperate with their dentist in all that is necessary is small when compared to the others. The man with the refined, moneyed, and intelligent following knows little of the misunderstandings and vexations connected with a practice largely made up of the unrefined, poor, and average-intellect people. From the truly professional standpoint these last are as worthy of attention in their troubles as the first, and it has seemed to the writer that many misunderstandings have arisen in a practice of this character because of the practitioner's negligence and faulty teaching.

I had been in my office not over one month when a fairly educated woman came to me suffering from a slight case of pericementitis, abusing a dentist because a pulpless tooth was sore, claiming that he could not have treated it properly, for "how could a dead tooth ache?" Here is a case where more mistakes arise—on the part of patients—than from any other operation, and to my mind it is because of the practitioner not explaining, and to his using the word "dead" in place of pulpless. The word "dead" commonly means that which has passed from existence and cannot trouble. Again, they are told that these teeth will be free from future pain. The suggestion is here offered that we cease using the word "dead" in that connection, and in treating teeth of this nature that we have a split tooth at hand to show to patients what we have done, and to impress on their minds the fact that the operation is not a panacea

* Read before the Massachusetts Dental Society, at Boston, June 5, 1896.

against toothache, and that a tooth can cause trouble from inflammation of the pericementum as well. What practitioner has not had people ask him to kill the nerves in their teeth before filling, so there could be no pain ever again in that tooth or teeth?

The administration of ether in dental practice is a source of much annoyance. Very many dentists do not give anesthetics, but call in a physician to perform the administration. This is an operation possibly involving life or death, and is therefore looked on with the gravest thoughts by our patients; so when a dentist says he must have a physician, it means to them an evidence of weakness on the part of the first and one of strength in the latter. Why a dental practitioner who has a proper knowledge and training should not make a physical diagnosis and administer anaesthetics is difficult to understand. If dentistry is to broaden and develop on true scientific lines, this is one place where a radical change will have to take place. I am sure that if one of us were to employ a lawyer to conduct a case for us in court, and he having tried it in the lower court himself, then, when it reached the higher court, employed some one else to conduct it, we would consider it an evidence of weakness on the part of our lawyer, and that he was not competent.

At times there arise in all practices cases which require the internal administration of drugs; yet it has been my experience that the public are of the opinion that this is not within the domain of dentistry. In pericementitis, pulpitis, etc., the administration of narcotics is indicated and accepted as good practice, likewise the use of nerve tonics and sedatives in other cases. It has been my thought that the writing of a prescription in regular Latin rather than in English would help us in the prescribing of drugs for our patients and in their use by them.

The cause of and nature of decay of the teeth is understood by few people other than dentists. It is a most common thing to hear A or B say that they cannot understand why they have to spend so much money each year to save their teeth, when C spends but a few dollars and never has recurring decay. Perhaps patients do not trouble themselves to ask questions relating to the cause of decay and loss of teeth; yet this should not prevent us from, but rather stimulate us in, imparting knowledge which will benefit both our patients and ultimately the good name of dentistry. Apropos to the subject of decay should be mentioned the use of the brush, floss silk, powders, and mouth washes. There is a great need of insisting on means to keep the mouth in a hygienic condition.

A question often asked is: How long will this work last? On questioning the patient it may be found that they are filled with the idea that Drs. So and So guarantee their work to last for so many years, and some even forever. This is a bad policy for the dentist and the good name of our calling, for nothing lasts forever, and you may expect at any time the return of your guaranteed work in an imperfect state. Dental operations are governed in their lasting qualities by something other than perfection of workmanship, and the people should be taught this with great force. Some philosopher has said: "The ignorant say it is so; the wise, it may be so." There is no such thing as permanent work, when viewed from the standpoint of an intelligent knowledge of the conditions surrounding it. Many patients refuse to save their molar teeth as carefully as the incisors. Chronic dyspepsia arises at times from the inability to thoroughly masticate, due in many instances to loss of grinding power, and physicians are now sending cases of this nature to the dentist for treatment.

Medical men who have a knowledge of our work can assist us in many ways, and a friendly professional relationship with them should be cultivated. A profitable use could be made of the systems of physiology and hygiene used as text-books in our public schools. In many of these are chapters relating to the teeth and associate parts; and if those chapters could be prepared by a dentist in a manner to be practically instructive, benefit in a lasting form would ensue. However we may be pleased to be called good mechanics, yet we do not wish to have people think that our calling is purely mechanical and has no basis in science or relationship with art; intelligent people there are who consider us fair mechanics and nothing more. Our work has been decidedly mechanical in the past, and even at the present time is practiced by some only as such; but the day is at hand when the light of knowledge and investigation has worked a change in this view. The few men who have taken advanced positions and have coined that new word, "stomatology," are on the correct pathway to legitimate and rational dentistry. The day will soon pass when a brother practitioner will be followed in his teachings, unless he can give a logical reason for his ideas; too much credence has been given in the past to the authors of visionary procedures in our calling. That a thing is so because it is so is a weak woman's reasoning, and it will never do to build on such foundations, lest the structure reared should topple over. When we hear of men who have had failures and disap-

pointments and who have wrested success from such conditions, these are the men to heed, for to overcome failure is the certain pathway to success.

Patients who think that dentistry is merely a mechanic art are liable to estimate our fee as proportionate to cost of material used. When this has happened, it has been more the fault of the practitioner than of the patient. When we estimate our fees as physicians do, our services will be better understood and appreciated. Persons suffering from a wound, fracture, lesion, or disease of the oral parts seek, as a rule, the services of a physician, because of their contracted ideas of what dentistry really is.

That all these things are true in the main will be generally admitted, and the question is: What are we to do to better it? Elevate the standard for entrance and graduation in our colleges, and then, when a student graduates, let him be prepared to do dental surgery in the broadest sense of the word, so that he will be competent to compete in the domain of oral surgery with the medical profession; then will dentistry take its place in the minds of the public without question as to what it can do for humanity.—*Dental Cosmos.*

CATAPHORESIS.*

BY HENRY W. GILLETT, D.M.D.

Mr. President and Gentlemen: It was with some hesitation that I accepted the invitation of your committee to speak to you on this subject this evening, for the reason that I have but little new material to add to what I have already published. Consequently I must confine myself largely to further elaboration of matter already published, and to the consideration of the statements recently published by other workers along this same line.

As an introduction and a probable help to some of you in grasping more fully what follows, let us define certain technical terms which it will be necessary to use. To many of you this will undoubtedly be superfluous, but I find that a majority of the profession are not sufficiently familiar with these terms to use them understandingly. I trust, however, that it will not be long before our schools shall recognize the growing demand and the necessity for providing instruction in electricity instead of leaving it to private postgraduate enterprise and the commercial agents of supply houses, the

* Read before the American Academy of Dental Science, April 1, 1896.

present most readily accessible sources of instruction for the professional man.

It is well understood by all, I presume, that the term "electrical current" is used for convenience, and as the result of long habit. In the early history of the development of our knowledge of electricity, it was thought that the manifestations indicated a flowing current comparable to a current of fluid, so we have the term electric current, which seems unlikely to be supplanted. In speaking of this current we need units of measurement of its different qualities. We have these in the ampere, volt, ohm, coulomb, etc.

This term, "coulomb," at present one of the least used but most important terms, is the unit of quantity. I refer to it here for two reasons: first, as an aid to the understanding of the ampere, and secondly because I believe that it will eventually be one of the most commonly used terms. If your bill from your electrical supply company should charge you at a certain sum per thousand coulombs of electricity, it would correspond exactly to the usage of your gas company in their charging a certain sum per thousand cubic feet of gas.

Having a unit of quantity, we next need a unit of current strength or rate of flow. We have this in the ampere, which is the current strength, which allows one coulomb of current a second to pass a given point in the circuit, and corresponds in usage to cubic feet per second of gas or water flow.

For instance, if five amperes of current flowing one second deliver five coulombs of electricity in ten seconds it delivers fifty coulombs.

In medicine we use comparatively weak currents, and consequently measure it in the thousandths of an ampere—milliamperes.

In the volt we have the unit of electro-motive force, corresponding to our usage of pounds pressure per square inch in gas, steam, or water.

When we modify the one-hundred-and-ten-volt current so as to use a ten or twenty volt current from it we do something which we may illustrate by the dam of the millwright. Let us suppose he has a twenty-foot dam, and a flume from the bottom of it for his main mill wheel, where he may use all the pressure he can get from his dam; but for some other small machinery, let us suppose, he leads a flume out five feet from the top to run a small water wheel requiring less pressure. With this selector we tap the one-hundred-and-ten-volt circuit, with an adjustable contact, and draw off from it any part of forty volts in pressure that we may wish to use.

One other term, "resistance," has an obvious meaning; it is the op-

posite of conductivity. You know, for instance, that copper conducts electricity well, iron conducts it less readily, and German silver least readily of all our commonly used metals; conversely, we say that the resistance of copper is less than that of iron, and that of German silver greater than that of iron; that the resistance of distilled water is very high; that of a sodium chloride solution low; that of the tissues of the body higher than the substances we have mentioned except pure water, and that of a dry tooth very high. The resistance of a conductor also depends upon its dimensions. A large wire will conduct more current than a small one; a large surface of the body covered with an electrode will conduct more current without pain than will a less portion of the same surface. We measure this resistance in ohms.

The ohm is the resistance of a column of mercury of a certain size and length; roughly, it corresponds to the resistance of four hundred and sixty feet of ordinary telegraph wire.

The terms "positive" and "negative" scarcely need defining—the positive, indicated by the plus (+) sign, being applied to the current coming from the dynamo or battery; the negative, indicated by the minus (—) sign, being applied to the return current. "Electrode" is a term commonly used to describe the applicators used in administering electricity. The positive electrode is often called the "anode," and the negative the "cathode." We have several subdivisions of electricity and kinds of electric current; but we are concerned to-night with but one kind, the continuous or galvanic current, such as is used for incandescent lighting or is obtained from any form of primary battery.

Now it was discovered years ago (1858, to be exact) that the galvanic current would carry with it into the tissues of the human body such liquids as tincture of aconite and chloroform.

Richardson, who made this discovery, subsequently retracted his statements, but others took the matter up at different times. Late in the eighties Peterson, Morton, and others did valuable work in developing the principle and process, which had come to be known as "cataphoresis." Many other terms have been used to describe it, but this seems still to be the favorite. In a paper published in the February number of the *International Dental Journal* I quoted many of Dr. Peterson's experiments and his references to the earlier history of the principle. In that paper I attempted to give, as concisely as possible, an outline of the development of the use of the principle in medicine.

Cataphoresis has been for some years a process of recognized value to the electro-therapeutist. For further information on the history of its use in medicine I would refer you to the article mentioned and to the references made there.

Now let us consider what happens when we perform cataphoresis in any tissue.

We apply a suitable galvanic current to the tissue by means of suitable applicators or electrodes, the current flows through the tissue from the positive to the negative electrode, and it carries with it a portion of any fluid having the right properties, such fluid being placed on or in the positive electrode.

This property of the galvanic current seems to be partly or largely a mechanical effect. It is stated by Morton that he has driven powdered graphite deeply into the sweat follicles of the skin by this means. A globule of mercury can be driven back and forth in a tube containing dilute sulphuric acid by alternating the application of the positive and the negative current to wires dipping into the fluid at each end.

I have here an example of what happens if you use a copper electrode. In this case we have decomposition of the copper electrode itself, then cataphoresis of the resulting copper salt. It was done in this way. The copper wire was thrust into this piece of steak and made the positive electrode, another wire was thrust in at another point and the current turned on. You observe the spreading and penetration of the green stain into the meat.

With your permission I will now quote from a previous article of mine some experiments bearing more directly on our use of the current. (See February number of the *Dental Cosmos*.)

You will find at the end of the same article several cases from practice, and others are cited in my article in the February *Dental Cosmos*. I might quote to you many more, but it seems unnecessary.

Now let me define what I meant a few moments ago by a suitable galvanic current. The current from any set of primary batteries or any continuous-current lighting system answers the requirements. It is, however, very desirable that the current supply be steady. I am told that your system here in Boston is not satisfactory in that respect. This fluctuation, of course, may come either from unsatisfactory conditions at the central station, or from large intermittent demands upon the system made by the running of machinery subject to sudden stopping and starting. When a suitable street current is not at command a dry battery outfit seems to me to offer

the best source of current supply for this purpose. In fact, I am beginning to question whether the dry battery outfit, which the manufacturers of the selector have prepared to go with it, is not the best source of current-supply. It certainly has the merit of steadiness of current and of not needing attention in caring for it.

Now as to electrodes: for the negative, the ordinary sponge-covered electrode is suitable. The sponge, however, soon becomes dirty, and I prefer to strip it off and use for each patient a fresh piece of cottonoid or other absorbent material. The positive electrode varies according to the part to which it is to be applied. For obtunding or bleaching dentine a platinum point is needed, which is to be applied to cotton placed in the cavity or to have cotton wound upon it. For obtunding soft tissues the most successful electrode is that suggested by Morton, having a reservoir which feeds the solution to be used to the absorbent layer between the metal of the electrode and the skin. It is necessary for satisfactory results from cataphoresis that the metallic conducting medium shall come close to the tissue to be affected. As to drugs, there are many that may be used, and more will undoubtedly be found useful for different purposes, but to-night I wish to confine myself especially to three. The first is cocaine, with which nearly all my own work has been done. When an aqueous solution of cocaine of fifteen to thirty percent is placed in a sensitive cavity so insulated from the soft tissues that the current must go through the tooth, and the positive electrode is applied to this cotton, and a current of suitable strength is passed for a varying length of time, enough of the cocaine will be carried into the dentine to induce there the normal cocaine effect. The time required to produce this effect varies with the conditions. For absolute insensibility to such cutting as we need to do in preparing a cavity for filling, ten to fifteen minutes is average time. In some cases the time will be less than this, and in others it may require considerably more. With patients very sensitive to the electric current, it takes more time to reach a voltage which will accomplish the work quickly. A voltage of ten or twelve is sufficient, fifteen or twenty is more rapid in its effects, and thirty or more may be used in some cases. A better method of measurement, and in fact the only correct one, is to use a milliampère meter and gauge your dosage by that. The same voltage produces very different effect as regards quantity of current in different teeth. If we wish to bleach a pulpless tooth, we cleanse the cavity and fill the upper third of the canal as usual, and apply on cotton to the exposed

dentine a twenty-five-per cent aqueous solution of pyrozone. This is made by shaking two parts of twenty-five per cent ethereal pyrozone with one part of water, and allowing the ether to evaporate. The tooth being insulated by the rubber, such current as the patient can comfortably bear is pressed, and the tooth will be bleached in a comparatively short time, provided, of course, the coloring is one to be affected by the pyrozone.

Guaiacol has been advanced as a candidate for use as an anaesthetic agent. Sometime ago it was announced in Paris that guaiacol had marked anaesthetic properties, and that it was superior to cocaine in this respect. It was recommended to be used hypodermically, but with the warning that it would produce sloughing at the point of injection. Acting upon this hint, Morton claimed to have found that guaiacol used cataphorically on the skin would produce anaesthesia in about half the time that was required for cocaine solutions to produce the same effect. He tried the addition of cocaine to guaiacol, and used it on two teeth, on mucous membranes of the mouth for implantation, and for other operations. He reported excellent results, but it has since been stated that there is considerable sloughing when it is used cataphorically on mucous membranes. I have not yet ventured to try it in sensitive dentine, though I have seen it successfully used. I fear that its escharotic properties may do injury to the tooth. McKesson & Robbins, who have made up the combination of guaiacol and cocaine which they call guaiacocaine, assure me through their agent that we may hope to see a guaiacol free from these escharotic properties. Guaiacol, as you know, is a synthetic creosote. It is stated that it contains one and a half per cent of hydroxyl, to which are ascribed its escharotic properties. It is hoped by the firm named that they may be able to get a product free from hydroxyl. If they are able to realize this hope, and the results are what they expect, we shall undoubtedly have a very valuable drug in the combination guaiacocaine. Its action will be more prompt than that of cocaine alone, and the guaiacol will serve a very valuable purpose when the combination is used in soft tissues in retaining the cocaine and preventing its rapid distribution to the system. It is stated that when cocaine is added to a mixture of guaiacol and water, the guaiacol takes up eighty-six per cent of the cocaine, leaving only fourteen per cent to the water. We now come to the apparatus required and the technic of making the application to sensitive dentine, or for bleaching, the only difference being that for bleaching you may use more current, and may add the cur-

rent in larger steps. A switch is provided on the one-hundred-and-ten-volt selector for this use.

The ordinary electric apparatus used by the medical profession is very nearly useless in making applications to sensitive dentine. The living tooth is much more sensitive to the irritation of the electric current than most other tissues of the human body. Some subjects are so sensitive to its effects that the increase of pressure, even in the quarter-volt steps given by this selector, is apparent to them in the early stages of the application to sensitive dentine.

On the other hand, some subjects are able to bear the full one-hundred-and-ten-volt current when it is choked down in flow, as described by one of your Boston practitioners in the March *International Dental Journal*. I have taken such a current as he describes through sensitive dentine without finding it unbearable, but for the subject markedly sensitive to the galvanic current such a remedy is worse than the disease. I began my work a year ago with an apparatus giving just about the results he describes, but soon found it necessary to modify it, and when I found the key to the problem I also found my original expensive apparatus to be useless. I would say that the dangers referred to in the article mentioned are imaginary in a properly made apparatus.

This fractional volt selector, made for me by the Electro-Therapeutic Company of New York, has been especially adapted to the needs of the dental operator. As I have intimated, it is so arranged that the current is added in quarter-volt steps. The ability to do this is an essential factor to the general use of this method of obtunding sensitive dentine. Given this ability to control the current, and any sensitive cavity that is so situated that the current can be made to travel through it and through the tooth, anaesthetics can be forced into the dentine with no more discomfort than will be readily borne by sensitive patients. The dial at the top of the selector is a volt index. It is not absolutely, but is very nearly, correct for such currents as are likely to be used with it. The electrodes needed are the ordinary sponge electrodes, and a needle holder for the piece of iridio-platinum wire for the positive electrode. A milliampère meter is very desirable also. With this selector it cannot be said to be an absolute essential, since you have in the voltage and in the patient's sensations two guides. However, it is impossible to know what quantity of current you are using unless you do have a meter, and I would not willingly dispense with one. It should be so arranged as to register five milliampères on a scale a

couple of inches long, so as to have a considerable movement of the needle for each milliampère.

The technique of administration is simple. If possible, apply the rubber dam. If the cheeks and mucous membranes can be kept away, and the parts kept dry enough so that the current will not flow off through the other tissues, it will do as well, but it is usually much easier to put on the rubber at once. Next see that any metal fillings, near enough so that the current may reach them either by contact with the cotton, the electrode itself, or by the surplus of the anæsthetic solution flowing along to them, be insulated by covering with soft gutta-percha, wax, varnish, or other nonconductor. Select a pellet of cotton loosely rolled, and of such size and shape as will about fill the cavity, saturate it with a freshly made twenty or twenty-five per cent aqueous solution of cocaine, and place it in the cavity. The sponge of the negative electrode should be well wet with water or dilute salt solution. The patient may hold it in the hand if preferred. I generally let either the patient or my office attendant hold it on the side of the face or neck. Having the selector conveniently placed at the back so it can be reached with the left hand, the current turned on at the switches, and the knob turned back till the needle stands at zero, apply the positive electrode to the cotton, and slowly turn on the current by the knob on top. Keep your contacts steady and watch your patient. Usually at from three to six volts the patient will begin to feel the sensation due to the flow of the current. This first sensation cannot be called pain; most subjects speak of it as a feeling of cold. As the patient begins to show that the sensation is beginning to be painful, pause in the turning-on process, or even turn it back a bit. Explain that after a moment's rest the sensation will grow less. Take this opportunity to explain that the current is entirely under control; that it is not necessary to give pain, but the current should be added as fast as may be borne without real discomfort, and that the stronger current works much faster. After a period varying from fifteen seconds to two minutes you will usually be able to go on, adding current gradually. If I am able to get as high as a fourteen or fifteen volt current in the first seven or eight minutes, I generally continue the application only nine or ten minutes. If it takes me longer to get to fifteen volts, I am apt to continue the application for fifteen minutes, especially if I have a very sensitive cavity to deal with. I have absolutely benumbed the dentine of cavities in seven minutes for patients who could take a good deal of current.

You soon get to know about what each patient needs. If in turning on current you find that after ten volts or so have been turned on you can add two or three volts at a time, you may know that the cocaine effect is well under way. When the dentine is anaesthetized you can usually go on adding current rapidly up to thirty or forty volts if you wish. I consider a voltage of fifteen or twenty an average application. If you have a milliampère meter, and find it recording anything from one-third of a milliampère to two milliampères, you may be sure of ultimate success, even if you can use only a low voltage. Very marked sensitiveness to the low voltages is present when there is an exposed pulp below the softened dentine. An exposed pulp will not readily bear as high voltages as dentine will, and in these cases your meter will record more current. Having completed my application, I turn the current back nearly to zero, and remove the negative electrode first. If the patient is one not very sensitive to the current, I do not trouble to turn back to zero, but break contact gradually by sliding the negative electrode off slowly. I then go on with the excavation as usual, bearing in mind that I may penetrate through the anaesthetized layer. If this is done, a second application may be made, in which you will be able to turn on current much more rapidly, and need shorter application. In my sensitive cavities I find I make up the time by reason of the increased speed possible in doing the cutting afterwards. In many cases I have been able to anaesthetize, completely and painlessly, dentine for patients for whom I had previously been unable to find any relief. I find no cases of sensitive dentine that cannot be controlled when cocaine cataphoresis can be employed. I anticipate being able to control them with less expenditure of time as we gain experience with other drugs.—*International Dental Journal.*

ORAL SURGERY.

BY EDMUND W. ROUGHTON, B.S., M.D. (LOND.), F.R.C.S. (ENG.).

DISEASES OF THE GUMS.

THE mucous membrane of the gums is liable to the same inflammatory affections as that lining the rest of the buccal cavities. These and tumors of the gum have already been described, but there are some other diseases which require mention.

Hypertrophy of the Gums.—This may result from the irritation caused by badly fitting dentures or accumulations of tartar. In such

cases the hypertrophy is not great, and it is very seldom that it is necessary to do anything more than to remove the cause of irritation. But in children a peculiar variety of this disease is sometimes encountered. It commences at the time that the temporary teeth are being cut—between the ages of six months and two years. The gum increases in size so that eventually the teeth become almost completely hidden from view by large papillomatous or polypoid-looking projections of the same color as the normal gum. Although in places they are soft, vascular, and spongy-looking, they are mostly firm and fibrous to the touch. The disease usually affects the whole of the alveolar arch in both jaws, but may sometimes be limited to the incisor region. In some cases the overgrowth is sufficiently large to project from the mouth and to bulge out the cheeks. Mastication is considerably hampered.

Microscopic examination proves the growth to be a pure hypertrophy of the gum, chiefly the fibrous portion. In structure it consists of a dense stroma of interlacing fibers, containing much glandular tissue in its interstices and covered on its surface by large and vascular papillæ. The growth appears to start from the periosteum around the necks of the teeth.

The subjects of this disease are often deficient mentally. Sometimes it occurs in several members of the same family.

Treatment.—It will not suffice simply to pare away the hypertrophied tissue, as recurrence is pretty sure to follow. This is owing to the disease affecting the sockets of the teeth as well as the gum. To effect a permanent cure it is necessary to remove the alveolar margin as well. The germs of the permanent teeth in the vicinity of the disease must be avoided as far as possible.

Polypus of the gum is the name given to a localized hypertrophy of a portion of gum usually between two teeth. It is produced by the irritation of a rough or carious tooth, tartar, or some portion of an artificial denture. In microscopic structure it resembles gum tissue. Sometimes the growth encroaches upon the cavity of a carious tooth so as to simulate polypus of the pulp, but it may be distinguished from the latter by its greater sensitiveness and by its pedicle or base of attachment being between the teeth and not within the carious tooth.

Treatment consists in removing the source of irritation and snipping off the growth with scissors. Its base should be touched with nitrate of silver or with the electric cautery. Recurrence does not take place after effectual removal.

DISEASES OF THE FLOOR OF THE MOUTH.

Ranula.—A ranula is a cyst under the tongue, usually on one side of the frenum. Different views have been held as to the nature of the cyst and its mode of formation. It was formerly thought that it was always the result of dilatation of Wharton's duct. Although some ranulae may be due to this cause, the majority of them are of a different origin; the shape of the swelling is not that of a dilated duct of Wharton, nor is the submaxillary gland itself swollen as it is in cases of obstruction of the duct by a salivary calculus; moreover, it is sometimes possible to pass a fine probe along the duct for an inch or more by the side of the cyst. Ranula has also been attributed to dilatation of one of the ducts of the sublingual gland, but the shape of the swelling and the condition of the gland itself negative this view. It is now held that the disease is usually due to dilatation of the duct of the Blandin-Nuhn gland, a small mucous gland situated on the under surface of the tongue a little to one side of the middle line. Von Recklinghausen had the opportunity of dissecting a subject in whom there was a ranula, and discovered the remains of the Blandin-Nuhn gland projecting into the cavity of the cyst; he also found that the epithelium lining the ranula was similar to that of the gland.

The disease is nearly always very chronic; it causes no pain, and may pass for a long time unnoticed. The only subjective symptoms which it produces are a slight discomfort in mastication and a sense of fullness under the tongue. When the mouth is opened and the tongue turned back a ranula is plainly visible as a smooth bulging swelling of a deep bluish color, tinged with pink, and more or less translucent; large tortuous vessels are often seen coursing upon its surface. It is usually very soft to the touch, but may feel tense; fluctuation can be easily detected.

Treatment usually adopted is to cut out a portion of the cyst wall with scissors; the fluid thus evacuated is clear and viscid. A simple incision without removal of a portion of the cyst wall is usually followed by a reaccumulation of the fluid. Some surgeons prefer to introduce a seton and leave it in position for a week. If the above method fail, a triangular flap of the cyst wall should be cut and stretched back into the cavity of the cyst; this effectually prevents the cyst from closing before its cavity is filled up. Lastly, the cyst may be completely removed, but the proceeding is a difficult one.

Dermoid Cysts.—These in the floor of the mouth are due to the

folding in of a portion of the integument during the coalition of the two lateral halves during development, or to imperfect obliteration of the lingual duct. In this manner a cavity lined by skin is formed. The epithelial lining of the cyst wall is usually tough and fibrous; it produces a thick material resembling sebaceous matter and composed of cast-off epithelial cells, oil, cholesterine, fatty débris, and sometimes hairs. The cyst is situated either in the middle line between the two genio-hyo-glossi muscles, or a little to one side between the genio-hyo-glossus and the mylo-hyoid. It is usually single, but sometimes one is found on each side of the middle line.

Although of congenital origin, it is very seldom that dermoid cysts in the floor of the mouth are noticed before the age of fifteen or twenty. The subjective symptoms which they produce are of but slight importance, although more pronounced than those produced by ranula, owing to the more solid nature of the cyst contents; discomfort in eating and speaking and a sense of fullness are usually the only symptoms complained of.

The tumor projects both into the floor of the mouth and in the neck between the chin and the hyoid bone, forming a lump as large as a hen's egg or larger. The surface of the tumor is smooth and its outline rounded or elongated; the mucous membrane covering it is of a yellowish tint, and not translucent as in ranula; pressure produces distinct pitting in some cases. Fluctuation can usually be obtained both inside the mouth and in the neck, but the feeling is much more doughy than in a case of ranula. The diagnosis is usually easily made. In case of doubt it may be cleared up by an exploratory puncture.

Treatment.—The cyst may be incised through the mouth, and the cavity packed with gauze after evacuation of the contents. It is, however, more satisfactory to remove the sac completely. If the tumor be small, this can be easily done from within the mouth. If the tumor be a large one it must be removed through an incision below the jaw, either in the middle line of the neck or over the most prominent part of the tumor; the dissection is not usually difficult or dangerous.

Salivary Calculus.—A salivary calculus not very uncommonly forms in the duct of the submaxillary gland. In size and shape it somewhat resembles a fragment of slate pencil. It consists of phosphate and carbonate of lime and phosphate of magnesia. It forms very slowly, and may remain for years without causing any

symptoms; but eventually inflammation is set up, the surrounding tissues become swollen and painful, and the duct more or less completely obstructed. As the result of this obstruction and of inflammation spreading backwards along the duct the submaxillary gland becomes enlarged.

When the interior of the mouth is examined the tongue is found somewhat swollen; the parts between the tongue and the floor of the mouth on the affected side are red, swollen, and tender. On palpating beneath the jaw the submaxillary gland is found to be enlarged and hard, but not as a rule tender to the touch. The presence of the symptoms just enumerated should always lead to an examination of the submaxillary duct. On introducing a fine probe a rough and gritty mass will be felt, usually near the orifice, but sometimes farther back.

Treatment.—The calculus must be removed through an incision made directly over it. Great care should be taken not to break it, as any fragments left behind are difficult to remove and are apt to cause even greater irritation than the original concretion.—*British Journal of Dental Science, October, 1896.*

PATHOLOGY AND THERAPEUTICS OF DEAD TEETH.*

BY DR. J. H. CLAUDE.

[The author defined a tooth as dead when the pulp had been devitalized. Respecting the morbid anatomy of such cases, he said:]

WHEN a pulp dies, the pericementum—that portion of the periosteum at the root apex, reflected upon the root from that lining the alveolus—becomes congested, and, unless early interference is had, suppuration supervenes. First, the pericementum becomes distended and partially detached from the root, pus generates in the sac thus formed, and becomes a foreign element which must be thrown off, and, if influenced by gravity only, would discharge by the shortest route; but it is directed therefrom by the anatomical structure of the environments. Pus once formed and the periosteal sac containing it broken, it must then find its way through the bony structure until it reaches the periosteum covering the outside of the maxilla, when it becomes again arrested by this tough, elastic membrane, causing much distention and inflammation of the surrounding tissues. The pressure of the constantly increasing

* Read at union meeting of Maryland State Dental Association and Washington City Dental Society.

generation of gas from decomposition of the pulp and pus secretion from the sac thus formed causes a thinning of the soft structure until an opening is established, when the trouble subsides in a few days, leaving a permanent fistula unless interfered with.

Whatever the treatment—extraction, which is seldom necessary, or cure by other means—morbid changes have already taken place which will remain through life. The periosteum becomes thickened, the cementum nodular if inflammation has preceded the death of the pulp, and the bony structure has become somewhat thickened.*

The color of a tooth is not altered by the death of the pulp if the *débris* is all removed and it is properly filled before the discoloration takes place. It remains a useful and ornamental part of the human organism, and if anything it is more adherent and firmly fixed in its socket than if the pulp were alive.

The most prominent symptom of the partial death or approaching death of the pulp is a not well-localized, intense pain on the affected side of the jaw, described often as neuralgia, the pain intermittent in character, sometimes described as thumping or hammering, increased in intensity when in the reclining position.

It is often difficult to determine in the early stages the tooth thus affected, and most frequently the pain is described by the patient to be in some other tooth than the one causing the trouble. I was called to see a patient a short time since who had a dentist to extract the upper second bicuspid, which was perfectly sound, only to get a few moments' relief, probably from loss of blood. Shortly afterwards the attack returned with renewed violence. He sent for his physician, and was laid up in bed, only resting moments at a time while under the influence of anodynes. After being under anodyne and tonic treatment for three days, he sent for me. Upon examination I could see no fillings or cavities in his teeth. The upper right lateral incisor appeared a little dull in color, and had a slight fracture of enamel near the cutting-edge. A year previous to this I had examined his teeth, and he reminded me that then I had told him it looked like a dead tooth. On feeling in the roof of his mouth, just above the root of this tooth, I found it exquisitely sensitive to pressure, and detected some distention, softening, and fluctuation. I brought my dental engine to his house and drilled through the palatal surface into the pulp canal, and pus flowed freely through the openings. His relief was immediate. After two weeks, when the discharge had ceased, I filled the root,

* See *Dental Cosmos*, No. 1, page 33, 1896.

with no subsequent trouble. This pulp was devitalized by a blow when he was a child, and, judging from the size of the apical foramen, before the tooth was thoroughly developed.

Cases of this sort are of too frequent occurrence where good teeth are extracted on the demand of the patient, without the dentist using proper discrimination.

When in doubt a delay of a few days or hours may establish beyond peradventure the diagnosis, and teeth may be saved which otherwise are ruthlessly extracted. Patients will nearly always consent to put up with the suffering for a time if alleviated by remedies. A careful examination will always raise a suspicion of the offending tooth, and often settle the diagnosis from the pain on percussion, looseness, insensibility at cervical margin, and response sometimes to heat and cold. A partially dead pulp will respond to heat and cold even more actively than a tooth in a normal condition. There may be no pain on cold being applied, but the pain will be intensified by the application of heat. This is a very important point in a discriminating diagnosis.

The pulp once dead, the cavity should be made large enough to afford access to all of the roots, and they should be cleaned out thoroughly to the apex, disinfected, and filled.

His method of filling the pulp-canal is that described by Dr. N. S. Shields, filling with gold or other substance that will not absorb moisture.

DISCUSSION.

Dr. L. Ashley Faught was always sorry to hear these teeth called dead teeth. They are pulpless teeth, but in a state of semi-vitality; they are not dead.

Dr. W. A. Montell asked Dr. Faught if he would describe a tooth as pulpless when it contained a putrescent pulp.

Dr. Faught said that what we describe as the pulp of a tooth is a vital organ; when it is putrescent it is not the pulp.

Dr. T. S. Waters spoke of the value of an electric lamp in diagnosing a dead pulp. When the light is made to pass through a tooth with a dead pulp, the tooth will appear opaque; if the pulp is alive, it will be clear. Reflecting light from a mirror outside the mouth upon a mirror inside and from this back through the tooth, will answer almost as well as an electric lamp for the purpose.—*Dental Cosmos.*

A PRECAUTION IN CATAPHORESIS.

BY L. E. CUSTER, D.D.S., DAYTON, O.

SOMETIMES ago, while producing cataphoresis with the Edison current, I could not account for a shock to the patient even while there was no current flowing through the shunt and presumably none through the patient. It was not until she was told to keep her hands from the arms of the chair that we were able to proceed. After the operation we investigated the cause and it was found to be due to a ground through the water flowing in the rubber tubing of the cuspidor.

The fountain spittoon is attached to the chair, and while the metal base does not touch the valve on the floor there is nevertheless a ground through the water flowing in the rubber tubing.

Water is not a very good conductor of electricity ordinarily, but when there is a column of it three-fourths inch in diameter and but five feet long it is quite a good conductor—good enough to produce very undesirable effects in cataphoresis. During the application the current could flow through the resistance of only one lamp and from there through the patient to the cuspidor, so that there was a flow of current which would not be registered on either the volt or ammeter. Now when the patient having the anode in the tooth touched the iron work under the chair arms she completed the circuit and received a shock.

Upon testing what voltage would be operative, it was found that almost one volt would be felt in this way. If the patient would keep the hand perfectly quiet the pain would gradually subside, but if she were to relax, or alter her grip there would be pain accordingly. With some patients it is their habit to tighten their grip upon the chair arm when pain is produced.

Now while there would be about one volt pressure through the water in the tubing, had the base of the chair been in contact with the valve on the floor we would have between forty and sixty volts, which we think would then and there break all connection between patient, chair, and operator.

The current which would flow through the patient in the above instance would be a direct current and not a shunt current, and the pain would be largely increased on that account also.

SURGICAL USE OF COCAINE.

1. The use of cocaine should not be abandoned because its irrational employment has produced deleterious results.
2. Always make a thorough physical examination of the patient before injecting the drug.
3. It should not be used in cases showing organic diseases of the brain, heart, lungs, or kidneys, or in persons of neurotic diathesis.
4. Children bear it fully as well as adults.
5. The patient should always be placed in a recumbent position prior to its employment.
6. Constriction should be used whenever possible to limit the action of the drug to the desired area.
7. Use a freshly prepared solution for each case.
8. Distilled water should always be employed, to which phenic, salicylic, or boric acid should be added.
9. A two per cent solution has a better effect, and is safer, than solutions of greater strength.
10. Never inject a larger quantity than one and one-eighth grains when no constriction is used.
11. About the head, face, and neck one-third of a grain should never be exceeded.
12. When constriction is possible, the dose may be as large as two grains.
13. Every slight physiological effect is not necessarily to be taken as cause for alarm.
14. Cocaine does have effect upon inflamed tissues.
15. In case alarming symptoms occur, use amyl nitrite, strychnine, digitalis, ether, or ammonia.

To which we will add: Always use a chemically pure product, free from isatropyl and cinnamyl cocaine as well as other impurities, the presence or absence of which can be readily ascertained by the simple tests of the U. S. Pharmacopœia.—*From the Codex Medicus, in American Therapist.*

METHOD OF REMOVING COLLAR CROWNS.

R. M. SANGER, D.D.S.

SOMETIMES it happens that "the other dentist" crowns a root which has been inadequately or improperly treated. The result is an abscess or a painful pericementitis. We wish to remove the crown. Perhaps we admit to ourselves in confidence that the crown

itself is better than one which we could make. We are in a predicament. From the patient's standpoint at the moment, we have the advantage. She has lost faith in "the other dentist," and has come to us. She is intelligent, and fully understands that "the other dentist" is responsible for the abscess which she expects us to cure. We can cure the disease; but if we replace the crown with one of inferior (our own) make, we are sure that the intelligence of the patient will be used to our disadvantage. There is but one way out of the dilemma, and that is to remove the crown so that it may be replaced. This may be done as follows:

With a sharp spear drill, lubricated with glycerin, drill through the backing at a point over the pin. If the drill is well tempered, this will not be very difficult. Enlarge this hole slightly with a round bur, then with a wheel bur cut the pin free from the cap. The crown can now be worked off without mutilating the band. Next, the pin remaining in the tooth root must be removed. To do this bur away the cement around it with a fine spear-pointed fissure drill, being careful not to cut the metal itself. This should be done to a depth sufficient to allow a firm grasp of the pin with the sharp-nosed pliers now supplied for bending the pins of artificial teeth. Do not attempt to draw the pin out by direct force, but twist it slightly to disintegrate the cement, when it will be found that the pin will come away with little effort. You have thus succeeded in removing the crown without mutilation.

When the root has been restored to a healthy condition, replace the crown, insert a platinum and iridium pin through the opening in the backing which was drilled to release the original post. Fasten into position with hard wax, remove carefully, invest, and solder.

In this way you can preserve the crown made by "the other dentist," with which no fault was found, and after the proper treatment simply reset it, with very little labor to yourself, a good fee, and considerable glory.—*Items of Interest.*

HOW TO TREAT SENSITIVE DENTINE.

DR. A. H. BUTTERFIELD, STAMFORD, N. Y.

CAREFULLY selected, well-shaped, small and sharp instruments, with a well-trained hand, are more than half the requirements of painless work. I regard a well-adapted instrument of small size of more importance than medication in sensitive dentine. Last win-

ter I commenced using sulphuric acid, preparatory to filling roots, and observing its anaesthetic effect I tried it on sensitive dentine, with enough success to embolden me to further use it. Now, with few exceptions, I am able, with its use, to operate on the most sensitive teeth without discomfort to the patient.

At my chair I have a syringe nozzle connected to a handle; this is connected by a flexible pipe to a large cylinder (built like the air chamber to an ordinary hot-air syringe), which is heated by a moveable flame, so that the air can be heated from moderately warm to hot. Back of the cylinder, and in connection with it, is a chamber into which I put my medicament. This is controlled by a two-way cock; a lever of this cock is within easy reach of the chair, and by operating this lever I can allow the air to pass through the medicament or not, as I choose. This in turn is connected by a system of pipes to the laboratory water motor, which operates an air pump. By starting the water motor I can force a continuous stream of hot air, medicated or not.

After adjusting the rubber dam, or using some other means of preventing moisture from entering the cavity to be operated on, I turn on the air blast and thoroughly dry the cavity; then I put in a drop of sulphuric acid. After waiting a moment I wipe out all surplus, and with the warm air blast dry, after which, with small, sharp burs (or excavators), I can excavate without discomfort. After excavating I usually place a portion of unused soda to neutralize any acid that may be present, and proceed to fill with whatever material my judgment dictates.

The medicament used in the chamber spoken of is composed as follows:

Carbolic acid.	
Oil cloves.	
Oil cajeput.....āā ʒ j.
1, 2, 3, mixture..... ʒ j.

The use of which is to allay the discomfort sometimes caused by the blast of air on the dentine, and I find it very efficient.—*Dominion Dental Journal*.

Extracts.

EXTRACT FROM PROCEEDINGS OF SOUTHERN DENTAL ASSOCIATION.

THE report of the Committee on Hygiene being called for, Dr. G. J. Friedrichs made the following remarks, in lieu of a report, in order to present the subject for discussion: "The usual definition of hygiene as being 'the art of preserving health' is defective, since it is more than art, because it aims to increase and improve, as well as preserve; and the word 'health' is too vague to be of much value in this connection. In its broader sense the study of hygiene includes the examination of the conditions which affect the generation, development, growth, and decay of individuals, of nations, and of races; being on its scientific side coextensive with biology in its broadest sense, including sociology, rather than with physiology merely, as writers state. As regards practical hygiene—*i. e.*, the prevention of disease—it is evident that we may try to attain this end in two different ways, since we may either attempt to avoid or remove the causes of disease, or to make the body less susceptible to the action of these causes. Considering the great number of causes of disease, and the impossibility of shunning them all, even with the greatest care—nay, that this great care, if exercised, becomes itself a cause of disease; on the other hand remembering that the power which we have to modify plants and animals by regimen and breeding makes it probable that the human body might in a like manner be improved, to use the phrase of Royer-Collard,* by a sort of hygienic organoplasty; it might at first sight appear strange that more attention is not paid to this branch of preventive medicine. Theoretically it is possible to thus improve the physical condition of the individual; and to be effectual it would be necessary to work in accordance with the laws of natural selection, and prevent the production of weak and unhealthy persons; a problem which I fear none of us will live to see solved. Hygiene commences the moment when two animated, wandering, microscopic molecules meet and mingle into that one other which

*Organoplastie Hygiénique: ou Essai d'hygiene comparée. Mem. Acad. de Med. 1843, X., 479 pp.

is to grow into what you and I are, until fifty, sixty, perhaps a hundred years after, its elements are given back to the cosmic storehouse whence they have been borrowed. To the individual the first object of importance from a hygienic point of view is the local habitation or home, for when once fixed he usually remains so for a considerable time, and thus exerts a continued influence for good or evil. First requisites are thorough drainage of grounds; next, thorough ventilation of premises, for effluvia and organic vapors of various kinds necessarily become developed in every occupied dwelling. The proverb says that 'cleanliness is next to godliness.' Clothing adapted to the season and degree of individual exposure is also an important element of hygiene. The quality and quantity of food, and the regularity with which it is taken, are of the next importance. It should be properly prepared and properly masticated; its digestion should not be interfered with by hurry, anxiety, or any unusual mental or physical disturbance at or immediately after the time of meals. Sufficient bodily exercise should be taken daily to keep all the organs of the body in a healthy state of activity, followed by sufficient periods of rest, repose, and sleep, for it is during sleep that the main process of the nutrition and restoration of the nervous and muscular systems takes place. These conditions must be observed to retain and enjoy the blessings of health; for it is a principle which lies at the basis of hygiene, that causes of disease, however slight, by constant repetition day after day, or even longer intervals, will certainly at last undermine the health and produce permanent and often irremediable conditions."

Dr. H. E. Beach: "Dr. Friedrichs's report contained nothing special in reference to dental hygiene, and I do not know that there is anything new to be said upon that subject. Cleanliness is most essential to hygiene—cleanliness of the person, cleanliness of the premises, cleanliness in all things pertaining to ourselves, to our work, to our surroundings. Cleanliness certainly holds the first place in the science of hygiene. Those of us who have had dyspepsia will realize the importance of what Dr. Friedrichs said in regard to the hygiene of food, but in this respect no laws can be laid down. Food must be selected according to the individual constitution. One person can eat sweet things and grow fat on them and feel well, but cannot eat anything containing grease; with another it is just the reverse. Every man must be guided, in the selection of food, by what suits his peculiar organism—that which

his stomach can digest. Very much depends upon the manner in which food is prepared for the stomach; if it is not well prepared, it will not be readily digested. The preparation of food depends upon the ability of the individual to masticate thoroughly, and here it is that dentistry comes in. Too often in the services rendered by the dentist too little consideration is given to the masticatory function of the teeth, though fortunately the class of operators who made the large V-shaped openings is rapidly passing away. Yet occasionally even now a patient will present and ask us if we cannot fill up those spaces in which the food becomes impacted so uncomfortably. We should admonish our patients persistently on the point of oral cleanliness. When once the habit has been formed patients will take it as a favor if we will make an examination at stated intervals to see if the teeth are properly cleaned. Teach them how to do it, for as a rule they don't know how until you have taught them. They may brush the teeth three or four times a day, and yet not get them clean. Impacted around the necks of the teeth will be found decomposing matter, with a glutinous substance around the gingival margins. Point this out to them. When such instruction is properly given it will always be appreciated."

Dr. J. Y. Crawford: "To me the most interesting of all subjects is this one of prophylaxis. I recently heard a discussion of the action of the ductless glands of the organism, the teachings of the discussion supporting a theory that I have long held to on the subject of disinfection: antisepsis. A long time ago I embraced the idea that various fluids of the body have the function of sterilizing various articles of food. You have all observed how the lower animals dress their wounds, both their own and those of their young, with the tongue. The oral cavity furnishes fluids which are antiseptic in their character, and in proper quantity are capable of eliminating from the food qualities which unfit it for the stomach, rendering it sterile and innocuous. I once asked a distinguished physician what he thought was the greatest combatant of peculiar toxic influences in the system. He replied: 'Alcohol; the addition of alcohol to food (and I am well aware that I shall subject myself to criticism in what I am about to say)—but it is an undoubted fact that there are many articles of food into which the introduction of alcohol as a sterilizing agent would prove very beneficial to the human system.' It is probable that in the future less stress will be laid upon the specific influence of microorganisms as

a factor in disease, and we will hear no more of it than we now do of the doctrine of hereditary transmission, which was once so prominent. Functional activity, or inactivity, will be found to be the great factor. Much of our modern practice in physical exercise has a contrary result to what was designed. The peculiar influence of physical culture tends to blunt many of the functions of the organism, as the sense of touch, for instance. Let a young college athlete take you by the hand, and he gives your fingers a grip that impresses you most painfully. He has no sense of touch. The dental surgeon should be the most finely organized human being in existence.” .

CARDINAL GIBBONS—A WISE ANSWER.

WE see in our morning paper of October 30 that Cardinal Gibbons, being consulted as to a great financial question now before the country, replied that he could not undertake to decide in regard to a question upon which those who had made a life study of matters of finance failed to agree.

Miscellany.

DEATH FROM SEPTICEMIA, FOLLOWING TOOTH EXTRACTION.

PORT remarks that when we consider the great numbers of microorganisms that develop in the mouth, it is remarkable that extractions are not far more frequently the source of serious infections. Miller, in his book, cites sixty cases of infection from this cause, one-half of which resulted in death, while the other half in due time recovered. Port relates a case of a gentleman, aged twenty-two years, of good health, for whom an inexperienced person extracted the lower right first molar, with the key. The patient was taken with a fever, manifestations of infection presented, and the man died within four days. The autopsy revealed under the right half of the inferior maxilla an abscess the size of a large chestnut, from which the pus had followed the muscles of the neck down to the mediastinum. The two plural cavities rendered from 20 to 30 cc. of a fetid, brownish-yellow pus. The pleura did not seem to be affected, but the pericardium showed a little of the purulent exudate. Microscopical examination of pus from the abscess of the mouth revealed the presence of streptococcus, diplococcus, and club-shaped organisms. The diplococcus had every appearance of the sputum septicaemia described by Miller. Pus from the thoracic cavities revealed the presence of the same sort of organisms.—*Journal des Connais Medicales*.

CAUTION IN USE OF PYROZONE.

I WISH to report what might have been a serious accident caused by the violent explosion of a small sealed glass tube of pyrozone, twenty-five per cent solution, ethereal. I was about to break the tip of the tube with small cutting pliers, having followed directions on package by first chilling in ice water, when an explosion occurred, the sound of which was as loud as that of a revolver. Many of the fragments of glass were driven to the bone in my face and the hand holding the pliers. The pointed tip of the tube

was buried in the flesh near the temple; it would have gone clear through my eye had it varied its direction one inch. Fortunately my eyes were spared, but the blood flowed profusely from a dozen wounds in my face; some of the particles of glass are still imbedded in the flesh, as the wound, though not large, does not heal readily, and bleeds as though freshly cut if it is touched with the towel or hand.

I make this report that others may use greater care and avoid, if possible, an accident which might easily have cost me my eyesight.

I held the tube only partly covered with a wet towel, when it should have been wholly covered.—*Sidney S. Stowell, Pittsfield, Mass.*

HEMORRHAGE AFTER TOOTH EXTRACTION.

ROLL quite hard a piece of bibulous paper the size of a small pea; load fully with pure wood creosote and force downward in the socket. Continue to pack as you would gold in a cavity. When three-fourths full roll a larger piece and place in the mouth of the cavity and force it down, leaving in place for several hours.—*G. V. N. Relyea, in Dominion Dental Journal.*

I SHOULD like briefly to make known a simple method of stopping continued bleeding after extraction of teeth, which has proved quite effectual in my hands in several cases, in some of which plugging, various styptics, the actual cautery, etc., had been tried without success. It consists in passing a double silk thread through both sides of the torn gum, either with an ordinary curved needle or a handle needle, and then tying firmly over the alveolar border. In none of the cases in which this method has been employed has it failed to stop the bleeding immediately and permanently. The stitch may be removed at the end of forty-eight hours. The merely temporary success or complete failure of the usual methods, and the perfect success of that described, lead me to think that it may prove generally serviceable in what is frequently a very troublesome, if not dangerous, form of hemorrhage.—*Dr. James McNaught, in Dental Cosmos.*

DR. W. V. B. AMES, of Chicago, exhibited at the interstate meeting some flexible-edge rubber plates, with which atmospheric retention is obtained, in lower cases, by extending the flexible edge en-

tirely around, and, in upper cases, across the posterior margin, which can be so formed as to leave the major portion of the hard palate uncovered. To construct the flexible-edge plate, the model is grooved to the extent that is judged necessary for the pressure of the flexible edge; and in packing, the flask is filled with ordinary rubber, using draftsman's tracing cloth between the halves of the flask to facilitate separation for examination. When the mold is nicely filled with ordinary rubber, as much of this is trimmed away with scissors as is desired of the flexible rubber. The flexible palate rubber is then packed into the space thus made, and the flasks are brought together again and vulcanized at 300 degrees for three hours, the ordinary rubber coming out hard and the palate rubber soft and flexible. In waxing, especial care should be exercised in building the wax just as the finished edge is desired to be, since the flexible rubber will admit of little or no trimming.—*Western Journal.*

A NEW FILLING MATERIAL.

THE combination of silex, oxide of zinc, and gutta-percha was found to be good to resist mastication; but the silex, being so gritty, the burnisher left a black mark on the surface of the filling. Many other combinations were tried, but did not meet with satisfactory results until I tried the combination of

White gutta-percha.....	eight parts.
Aluminum filings.....	five parts.
Oxide of zinc.....	one part.
Whiting	one-half part.

This mixture I have been very much pleased with, and have named it "aluminized gutta-percha." It is easily manipulated, and holds its position in the cavity when firmly packed. I have not noticed any bulging, which is so common in the pink gutta-percha.—*Dr. F. W. Bliss, in Pacific Stomatological Gazette.*

BLOOD POISONING AFTER TOOTH EXTRACTION.

Two cases have lately come under our notice of fatal blood poisoning occurring after tooth extraction. In one case, that of a sailor, in New South Wales, it seems that the patient had applied some lotion to the afflicted part. Medical witnesses differed as to whether this lotion would have a deleterious effect; one medical man saying that it was harmless, while another affirmed that if the man had not used it he would still have been alive. In the other case,

that of a boy whose tooth was extracted by a chemist at Framlingham, it appears that the lad had lanced his own gum with a pocket knife, and a verdict of death from natural causes was returned. We cannot be too careful in seeing that all our instruments, especially forceps, are thoroughly well cleaned after each operation, as well for our own protection as for that of the public.—*British Journal.*

COCAINE IN THE TREATMENT OF SALIVARY FISTULA.

GUERRA (*Annali di Medicini Navale*, 1896; *Deutsche Medizinal Zeitung*, October 22, 1896) relates the case of a soldier who had received a wound implicating Stenson's duct and the parotid gland, which had left a fistula that proved rebellious to treatment. Finally he painted the whole parotid region with equal parts of glycerin and a five per cent solution of cocaine in water, and within a very few days the flow of saliva subsided. At the same time the wound was treated with the galvano-cautery. It healed in a few weeks. The author imputes the effects of the cocaine to its vasoconstrictor action, in consequence of which less blood was carried to the acini of the gland, and less saliva was secreted.—*New York Medical Journal.*

STERILIZATION OF INSTRUMENTS.

WIPE off all débris, place in a vessel containing peroxide of hydrogen till effervescence ceases; then place them in a ten per cent solution of thymol, to which add a few drops of oil of cassia to give a pleasant odor.—*S. E. Macdougall, in Ohio Dental Journal.*

FORMALIN simplifies and renders easy the sterilization of instruments or anything that needs disinfection. A half per cent solution is perfectly efficient after the article has been previously cleaned. It does no more harm to steel than water, and is more efficient than $2\frac{1}{2}$ per cent carbolic acid or $\frac{1}{500}$ sublimate solution.—*J. Morgan Howe, in International.*

THE PAIN-RELIEVING PROPERTIES OF GUAIACOL.

THE *Journal des Practiciens*, February 29, 1896, says: "At a recent meeting of the Academy of Medicine of Paris Ferrand made a report on the researches of Pise on the application of compresses of guaiacol for the relief of painful points underlying the skin. It

is his custom to wet a compress with from fifteen drops to one dram of guaiacol, apply it to the part affected by pain, and bind it on with a gauze bandage. Not only is the pain decreased, but anæsthesia is so complete that minor surgical operations can be performed. It is necessary that the guaiacol should be pure. If left too long in contact with the skin, and much is used, it may produce a fall of temperature and symptoms of collapse."—*Dental Review.*

CRYOSTASE.

CRYOSTASE is the name of a new substance discovered by a German chemist. It is a remarkable compound substance, and has some curious properties, among which is that of solidifying under the influence of heat and again becoming liquid at temperatures below the freezing point. It is the only substance which possesses the property of liquefying when cold and becoming solidified when hot; for though some substances like albumen harden at a slightly high temperature, they cannot be brought back to a liquid state even under the influence of a very low temperature. It is said to be made by mixing equal parts of phenol, camphor, and saponin, to which is added a rather small quantity of turpentine.—*Scientific News.*

DR. H. W. SHRIVER's method of setting a Logan crown consists in first making a gold cup, into which the cervical end of the root snugly rests; an oblong square hole is then made in the cup to admit the Logan pin; the crown is then ground and filed to the cup in position on the root; the concavity at the cervical surface of the crown is then packed with pellets of cohesive foil till full; a suitable-sized disk of pure, thin gold is then punctured by the pin and forced snugly against the cervical surface. The crown thus treated is placed in position in the mouth and the gold disk attached by means of wax to the cup over the root, all of which are withdrawn together, invested, and soldered.—*Western Journal.*

ALUMINUM IN THE UNITED STATES.

THE *Iron Age* estimates the American output of aluminum in 1895 at 850,000 pounds, and believes that the production of the present year will reach the imposing total of 6,000 pounds per day, or over 2,000,000 pounds.

HOW AN IRISH PRIEST EXPLAINED A MIRACLE.

A MAN asked an Irish priest what a miracle was. He gave him a full explanation which did not satisfy the man, who said: "Now, won't your reverence give me an example of a miracle?"

"Well," said the priest, "step before me, and I'll see what I can do."

As the man did so he gave him a tremendous kick behind. "Did you feel that?" he asked.

"Begorra, I did feel it, sure enough."

"Well," said the priest, "it would be a miracle if you didn't."—*Boston Pilot.*

IN swaging any metal I always oil my dies to prevent, as far as possible, the baser metals adhering to the plate, and before annealing wipe off all trace of the baser metals. After annealing and partial swaging wash the plates in sulphuric acid and boil them so as to peel off the base metals. I prefer the use of cotton seed oil for mixing modeling sand, to that of water, the steam from which caused the formation of air bubbles in the metal cast.—*L. P. Haskell, in Items of Interest.*

SODIUM PEROXIDE USED DRY IN ROOT CANALS.

THE rubber dam is applied and the canals freely opened. A fine iridium broach, roughened, is dipped in the sodium peroxide powder and carried into the canals dry; each canal to be treated to three or more applications. Effervescence indicates the chemical change occurring, but is less violent than kalium natrium, though quite as effective. Wash out canals with weak solution of sulphuric acid, dry and renew application if necessary.—*H. E. Burchard, in Cosmos.*

THE CONNECTICUT DEACON AND THE CLAMS.

A GOOD old deacon in Connecticut was very pious and fond of clams. When once upon a time he attended a Rhode Island clam-bake he overtaxed his capacity and was sorely distressed. But his faith in prayer was unabated. Leaving the party, and going down on his knees behind a tree, he was heard to supplicate: "Forgive me, O Lord, this great sin of gluttony. Restore my health, and I will never eat any more clams." Then, after a pause—"very few—if any. Amen."

REMOVAL OF CROWNS SET WITH GUTTA-PERCHA.

If the gutta-percha becomes chilled before the crown is in perfect position, or if necessary to remove a crown, apply heat as follows: On the point of an instrument form a minute ball of cotton, dip in alcohol, ignite, and when the flame is sufficiently reduced apply to the crown, which is thus quickly heated, and with less discomfort to the patient than by the application of heated instruments.—*J. Wilson Moore, in Cosmos.*

CHLOROPERCHA AS AN INSULATOR.

DR. D. W. DILLEHAY states in the *Cosmos* that, before setting crowns or bridges on hypersensitive teeth, it will be found that thoroughly coating the entire surface of the tooth, or teeth, with a film of chloropercha will prevent the pain experienced from thermal changes in these teeth after being crowned, and will also prevent the pain produced by the acid in the cement while setting the crown.—*The Ohio Dental Journal.*

LORETIN, THE NEW ANTISEPTIC.

LORETIN, a new iodine preparation, is a bright yellow-colored crystalline powder, not unlike iodoform in appearance, but free from odor and nonpoisonous. It replaces iodoform in the treatment of putrescent pulps, pulpless teeth, and teeth with abcess in all stages, with and without fistulous openings. Superior in my mind to any of the many antiseptics that I have tried.—*S. Eldred Gilbert, in International Dental Journal.*

A WESTERN exchange says that a practical revivalist requested all in the congregation who paid their debts to rise. The rising was general. After they had taken their seats, a call was made for those who didn't pay their debts, and one solitary individual arose, who explained that he was an editor, and could not because the rest of the congregation were owing him their subscriptions.”—*Our Dumb Animals.*

MOUTH WASHES.

THE ideal mouth wash should be antiseptic to arrest the fermentation of food particles, alkaline to neutralize acidity, deodorant to destroy or modify existing odors, rendering the breath inoffensive,

astringent just sufficiently to assist in preserving a healthful condition of the gums and mucous membrane.—*George E. Hunt, in Dental Register.*

PULP CAPPING.

If bleeding, arrest hemorrhage with a strong solution of tannin in alcohol; then touch exposure with wood creosote. Cap with thin asbestos felt, having the side next the pulp covered with a mixture of iodol, oxide of zinc, and vaseline.—*I. G. Templeton, in Items of Interest.*

Editorial.

TO THE READERS OF THE DENTAL HEADLIGHT.

IN assuming editorial charge of the HEADLIGHT I shall for the next few issues ask the kind indulgence of its readers.

It is not without many misgivings that I take up a responsibility of this kind; and in attempting to fill the place of one who for years has been accustomed to editorial work, and whose proficiency you all recognize, and who is thoroughly suited to fill such a position, I will ask you not to draw the comparison between us. I will, however, attempt to maintain the high standard of the HEADLIGHT, and to make it the organ of scientific dentistry in the South.

I pledge myself the champion of the code of ethics, and will do all in my power to carry out its laws.

The many readers of the HEADLIGHT could aid me greatly in this work by contributing original papers, reports of cases, etc., directly to the journal. I will be greatly indebted for contributions of this kind.

J. A. DALE.

A PARTING WORD.

ONE is ever reluctant to surrender a post of honor, but when its duties bring pleasant associations and rare opportunities it becomes indeed a difficult task. When I was offered the editorial management of the DENTAL HEADLIGHT, I accepted it with many misgivings but the determination to maintain it upon the highest professional plain. How well my intentions have been realized I leave to others to judge. It is mine to remember the most delightful relationships with our associate editor and the publishers, that have existed for the past six years, and the many pleasant and encouraging things that have been said by our *confrère*. My resignation is in obeisance to a sense of duty to prior claims upon me, and increasing responsibilities which demand my entire time. My retirement will in no way affect the management of the journal. The senior editor, Dr. Morrison, has been for fifteen years identified with the HEADLIGHT, and is a ripe scholar and forcible writer, and with the assistance of his new associate, Dr. J. A. Dale, who is already favorably known as a teacher and practical dentist of merit

and college honors, with the elements of youth and enthusiasm, will make a thoroughly reliable magazine in every department, upon which every one can depend. I wish to thank those who have contributed to the support of the DENTAL HEADLIGHT, either by writing for its pages or by their subscriptions, for their kindness and consideration, and to acknowledge my indebtedness to my associate and the publisher for their coöperation and indorsement.

HENRY W. MORGAN.

THE vacaney caused by the resignation of Dr. Henry W. Morgan from the editorial staff of the DENTAL HEADLIGHT has recently been filled by the appointment of Dr. J. A. Dale, of Nashville, Tenn., as his successor. We feel that in securing the services of Dr. Dale to fill this vacaney we are very fortunate; for, although comparatively a young man, he has already won for himself an enviable reputation as a dental surgeon and as a teacher of dentistry. We can assure our subscribers that the HEADLIGHT will be kept by him, in every respect, up to the standard.

MORRISON BROS., *Publishers.*

THE AMERICAN AND SOUTHERN DENTAL ASSOCIATIONS.

FOR the second time the American and Southern Dental Associations will hold their meetings at the famous Virginia seaside resort, Old Point Comfort. The Southern will meet on the first Tuesday in August, and the American will follow its adjournment.

There will no doubt be a good attendance. As is usually the case where they meet in different parts of the country, the dentist who attends one cannot spare the time, or is not inclined to incur the expense, of attending both, but this year when he takes his vacation everything will be favorable to his attending both meetings, and at the same time spend a pleasant two weeks at the seashore, which alone is worth the trip, as all who were there in 1894 will testify.

Begin now to make your plans to attend. Bring some new idea or appliance with you; if you have none, come and get the benefit of those presented by others.

NEW FRATERNITY INSTITUTED.

A NEW fraternity was instituted at the Dental Department of Vanderbilt University November 28. It is the Delta Sigma Delta

Fraternity, and the new chapter was called Kappa. This fraternity only pertains to the dental departments of colleges and universities, and this is the first chapter to be started on Southern soil. The exercises were conducted at the Dental Department building of the university, Dr. A. H. Peck, of Chicago, Supreme Grand Master of the fraternity, officiating. He was assisted in the work by Supreme Worthy Master Dr. F. H. Zinn, Supreme Treasurer Dr. J. P. Kester, Dr. J. P. Reid, of Chicago, and Dr. Henry W. Morgan. The following officers were selected: Grand Master, E. B. Cade, Tennessee; Worthy Master, E. H. Barker, Kentucky; Scribe, W. L. Boote, Louisiana; Treasurer, F. J. Shaw, California; Tyler, A. K. Parkes, Kentucky; Senior Page, E. M. Jolly, Louisiana; Junior Page, J. L. Hill, Tennessee; Historian, W. P. Sims, Tennessee. These gentlemen, with W. C. Gillespie, of Tennessee, and A. Sledge, of Alabama, constitute the ten charter members.

WONDERFUL EXHIBIT.

THE classes of the department of dentistry of Vanderbilt University recently enjoyed a demonstration by the most unique individual in the world: Mr. Harry P. Fitzgerald, of Philadelphia. The exhibition was a rare treat to all students of anatomy, and particularly instructive from its practical relation to the science and art of surgery. Mr. Fitzgerald is no freak, but an intelligent gentleman, who for more than thirty years past has visited all the principal Northern and Eastern dental and medical schools for the purpose of exhibiting the phenomenal power which he possesses of voluntarily producing the principal dislocations of the various articulations of his own skeleton, as well as portraying many of the functions of the muscular system. He attributes his phenomenal powers to the unusually large amount of yellow elastic tissue with which his joints are supplied, as well as practical knowledge of anatomy and the skill attained by long practice. These dislocations are produced with marvelous celerity, and are reduced with equal facility. The following are some of the most interesting dislocations:

1. Dislocation of the femur at the hip, downward and backward into the sciatic notch.
2. Dislocation of both femurs at once, showing typical shortening and version.
3. Dislocation of femur downward and forward into obturator foramen, thus shutting off return blood supply from contraction of saphenous opening.

4. Dislocation of both ankles (artificial production of "talipes varus").
5. Dislocation at knee, the patella being twisted beneath and between the condyles.
6. Dislocation of the humerus inward (subclavicular).
7. Dislocation of the humerus inward and upward, thus compressing the brachial artery, the pulse being lost at wrist. He also shut off pulse at wrist by elevating clavicles and pressing subclavian artery against corresponding clavicle with his finger.

Mr. Fitzgerald also showed with striking exactness:

1. Both platysma muscles and their functions, with origin and attachments.
2. Both heads of biceps long and short and attachments, especially glenoid attachment.
3. Bicipital fascia.
4. Omo-hyoid muscle, seen in cup-shaped depression formed by elevating clavicles.
5. The sartorius muscle, outlining Scarpa's triangle.
6. The action of the gluteus muscles.

MARRIAGE NOTICES.

DR. E. J. ETHERIDGE to Miss Belle Martin, at the residence of the bride, Columbia, S. C., November 12, 1896, at 7 P.M.

DR. FRANK W. WALLACE was married to Miss Mabel Leone Ballard, both of Chattanooga, Tenn., on December 9, 1896.

DR. J. EDWIN McGOWAN to Miss Gertrude Johnson, both of Pomona, Cal., on October 28, 1896.

BOOK NOTICE.

THE AMERICAN TEXT-BOOK OF PROSTHETIC DENTISTRY. In Contributions by Eminent Authorities. Edited by Charles J. Essig, M.D., D.D.S., Professor of Mechanical Dentistry and Metallurgy, Department of Dentistry, University of Pennsylvania, Philadelphia. In one octavo volume of 760 pages, with 983 engravings. Lea Brothers & Co., Philadelphia and New York. 1896. Price, cloth, \$6; leather, \$7.

The following well-known dentists are contributors: Henry H. Burchard, M.D., D.D.S., Special Lecturer on Dental Pathology and Therapeutics, Philadelphia Dental College; Charles J. Essig, M.D., D.D.S., Professor of Mechanical Dentistry and Metallurgy, Department of Dentistry, University of Pennsylvania; W. W. Evans, D.D.S., Washington, D.C.; C. L. Goddard, A.M., D.D.S., Professor of

Orthodontia, College of Dentistry, University of California, San Francisco; Grant Molyneaux, D.D.S., Professor of Prosthetic Dentistry and Metallurgy, Ohio College of Dental Surgery, Cincinnati; Rodrigues Ottolengui, M.D.S., New York Editor *Items of Interest*; Ambler Tees, Jr., D.D.S., Lecturer on Continuous Gum Method, Department of Dentistry, University of Pennsylvania, Philadelphia; Alton Howard Thompson, D.D.S., Professor of Dental Anatomy, Kansas City Dental College, Kansas City, Mo. At the present stage in the evolution of such a subject as prosthetic dentistry it is necessary that a work, to thoroughly cover the field, and at the same time be authoritative, should be written not only by a single author, but by a number, each one qualified to take up a special part, and to exhaustively bring it to a modern basis. This plan has been followed by the author of the "American Text-book of Prosthetic Dentistry," and we consider it the most thorough work of the kind now to be had. The editor does not claim that his work is intended to fill a "long-felt want," either upon the part of the practitioner or student. His chief aim has been to place before the profession a text-book which brings the principles and practice of prosthetic dentistry up to a parallel with the recent works upon operative dentistry, and he has ably accomplished his end. Up to the present time no volume upon this subject has made its appearance which so fully covers the subject as this one. It fills perfectly the double office for which it was intended: a reference book for the busy dentist and a text-book for the student. The work is replete with methods, and is finely illustrated. It should certainly find a place in the library of every practitioner.

Associations.

AMERICAN DENTAL ASSOCIATION.

JAMES TRUMAN, Philadelphia, Pa., President; Thomas Fillebrown, Boston, Mass., First Vice President; W. R. Clifton, Waco, Tex., Second Vice President; George H. Cushing, Chicago, Ill., Recording Secretary; Emma Eames Chase, St. Louis, Mo., Corresponding Secretary; Henry W. Morgan, Nashville, Tenn., Treasurer; S. G. Perry and W. W. Walker, New York, and A. O. Hunt, Chieago, Executive Committee. Next place of meeting, Old Point Comfort, Va., first Tuesday in August.

SOUTHERN DENTAL ASSOCIATION.

THE following officers were elected for the coming year: Dr. W. H. Richards, Knoxville, Tenn., President; Dr. E. P. Beadles, Danville, Va., First Vice President; Dr. A. P. Johnston, Anderson, S. C., Second Vice President; Dr. F. P. Welch, Pensacola, Fla., Third Vice President; Dr. B. D. Brabson, Knoxville, Tenn., Treasurer; Dr. C. L. Alexander, Charlotte, N. C., Corresponding Secretary; Dr. S. W. Foster, Atlanta, Ga., Recording Secretary.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

J. P. GRAY, Nashville, Tenn., President; T. W. Brophy, Chicago, Ill., Vice President; Louis Ottowy, Chicago, Ill., Secretary; Henry W. Morgan, Nashville, Tenn., Treasurer; J. Taft, Thomas Fillebrown, and B. Holly Smith, Executive Committee; Thomas E. Weeks, H. A. Smith, and J. D. Patterson, Ad Interim Committee.

NATIONAL SCHOOL OF DENTAL TECHNICS.

HENRY W. MORGAN, Nashville, Tenn., President; S. H. Guilford, Philadelphia, Pa., Vice President; J. F. Stephen, of Cleveland, O., Secretary and Treasurer; D. M. Cattell, N. S. Hoff, and George H. Wilson, Executive Committee.

NATIONAL ASSOCIATION OF DENTAL EXAMINERS.

J. T. ABBOT, Manchester, Ia., President; H. B. Noble, Washington, D. C., Vice President; C. A. Meeker, Newark, N. J., Secretary and Treasurer.

ARTIFICIAL TEETH.

To those dentists who have for many years used and approved the teeth bearing the stamp of H. D. Justi, it might seem unnecessary to further advertise them; but for the information of the great number of young men who are annually entering the ranks of the dental profession, we wish to call attention to a few points in which we claim a superiority for these teeth over all others.

In Form these will excel both in variety and in close imitation of nature, not only in her ordinary average styles, but also in what might be called her eccentricities of the form and arrangement.

In Color we have succeeded in most nearly securing that bony texture which is so distinct from the porcelain glitter we see in so many artificial teeth, and in the delicate blending of the shade they are eminently satisfactory.

In Strength they have the highest degree possible consistent with maintaining the other qualities required. It would be quite possible to make teeth much stronger by disregarding beauty of form, and making a coarse, thick block; but this ought to be, and doubtless would be, at once rejected by both dentist and patient.

In Adaptation to the alveolar ridge, great care has been taken to meet every requirement, and finally we ask for the product of our factory only a careful criticism and fair trial to convince the profession that we are fully justified in the superiority we claim for it.

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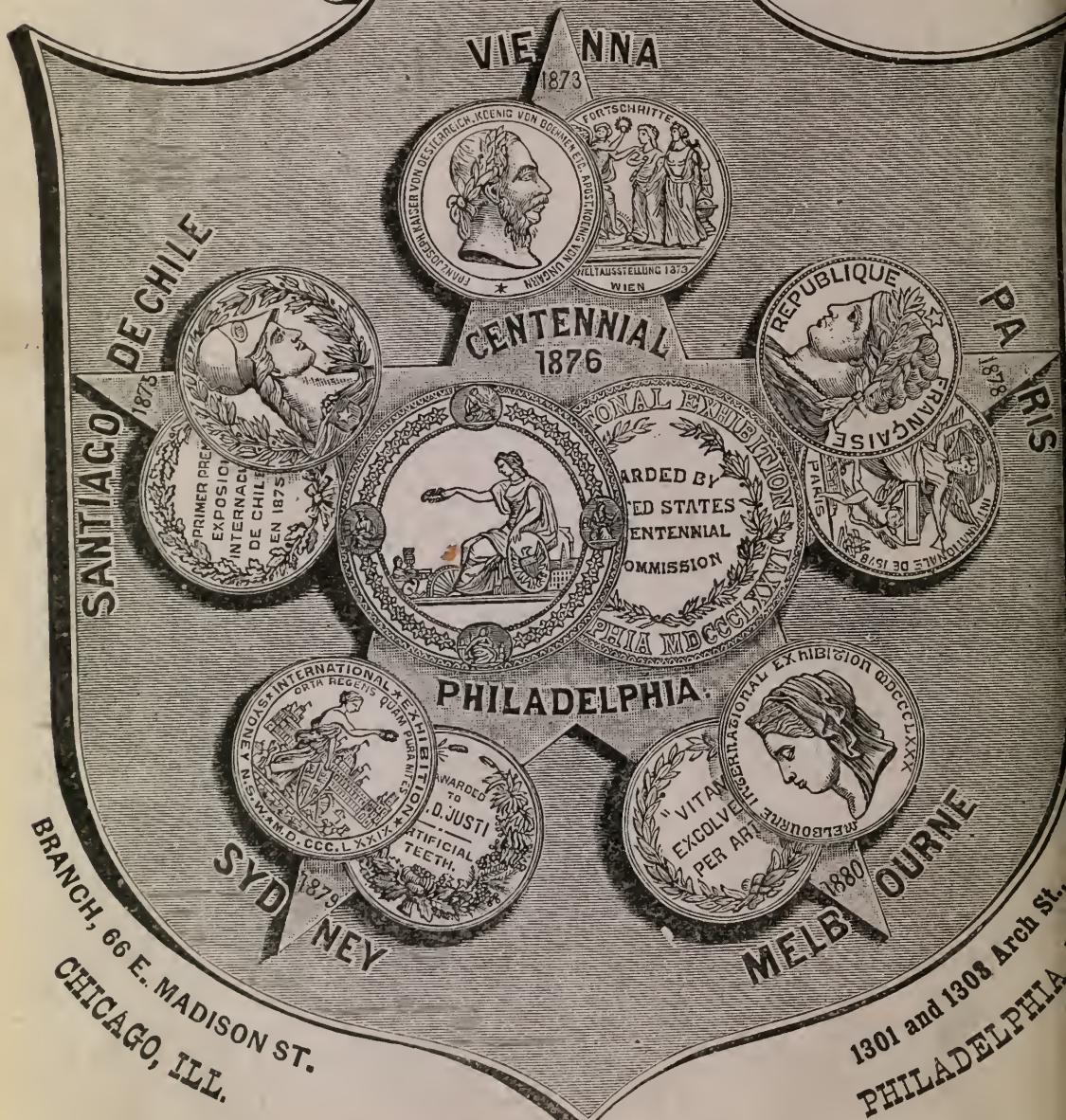
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Vol. 18.

No. 2.

Per Annum, 50 Cents.

APRIL-JUNE, 1897.

The Dental Headlight,

A Quarterly Record of Den-
tal Science Devoted to the
Interest of the Profession.

• • •

Edited by ——————

JAMES A. DALE, D.D.S.,
AMBROSE MORRISON, M.D.

Published by

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NOTICE.—Now is the time to subscribe for the DENTAL HEADLIGHT
for 1897.

MORRISON BROS.

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Communications, original contributions intended for publication in THE HEADLIGHT, and exchanges should be directed to Dr. James A. Dale, 217 North Summer Street; or Dr. Ambrose Morrison, Jackson Building.

All letters relating to business, containing remittances or advertisements, should be sent to the publishers, MORRISON BROS., 307 North Summer Street, Nashville, Tenn.

Neither the editors nor publishers hold themselves responsible for the opinions, theories, or criticisms of the authors of papers appearing in this journal, or any claims of originality or novelty that may be made by them. Papers will not be published under the head of "Original Communications" that have appeared in other journals.

ATTENTION.—We desire to call special attention to our facilities for making Gold Crowns and Bridge Work. See our advertisement in this issue.

MORRISON BROS.

T·H·E

DENTAL HEADLIGHT.

VOL. 18.

NASHVILLE, TENN., APRIL, 1897.

No. 2.

Original Communications. . . .

RECENT ADVANCEMENTS IN DENTISTRY.*

BY HENRY W. MORGAN, M.D., D.D.S., NASHVILLE, TENN.

Gentlemen: Anything like an exhaustive review of the multitude of improvements that have been made in dental appliances, instruments, modes of operating, etc., would require a great deal of time and tax your patience beyond the point of interest or profit, and therefore I shall only refer to what appears to be the more important.

First, I will refer to the recent changes in dental education. The improved curriculum of dental colleges now includes an extended course in technical and manual training, collateral studies and reading, which have not only broadened the scope and secured greater interest in the work, but have produced more scientific and methodical results than have been hitherto obtained, embraces the cutting of silhouettes, familiarizing the student with the physical properties of the histological structures of the teeth and their anatomical differences, and a more accurate knowledge of the relation of these tissues.

In connection with this work nearly all of the operations that dentists are daily called upon to perform are executed, and all of the principles involved are mastered under conditions in which it is possible to be thoroughly cognizant with every step involved in the undertaking. It is recognized by teachers in science that all mind pictures are more often vague than accurate, and that the greater the number of channels through which the ideas enter the mind the greater the accuracy, and consequently the more complete the knowledge. The training of the hand, the eye, and the mind at

* Read at the meeting of the Nashville Academy of Medicine March 17, 1897.

the same time tend naturally to a more rapid development and accomplishment of the ends in view where the training is methodical and progressive.

So marked have been the results of manual training that an independent organization looking to the further development of it was perfected in August, 1894, and the work is being rapidly approved and adopted by the colleges. In addition to this, the regular college curriculum has been modified so as to include recitations along with the didactic work; and laboratory courses in histology, bacteriology, pathology, and chemistry have also been added.

The requirements for graduation have been advanced until three years of six months each are required by all reputable schools of dentistry, and a strong movement has been made to extend the term to seven or nine months; and several times the proposition has been made to increase the number of terms to four years. With the increased requirements and the elevation of the standard for admittance has also come great improvement in the grades of men who enter the profession, and these are naturally capable of reaching higher attainments.

There has been very great improvement in methods of investigation, one field taken up at a time, less haphazard than ever before, and many exhaustive contributions have been made to the stock of dental knowledge by men of our profession, after much careful, scientific research, whose work will bear favorable comparison with the best scientific results attained in any other department of human knowledge. The work of this character which is attracting the most attention is that of Dr. G. V. Black, in which he has upturned many of the theories held for decades past.

Quoting from a criticism of Dr. Black's work, we submit the following: "Dr. Black, in his recent investigations as to dentistry, percentage of lime salts, strength, etc., occurring in the human teeth, has caused the displacement of the rudder in the dental ship while under full sail, and many of us are flopping in the wind and may drift upon the rocks of professional disaster if we let go the sheet altogether and base our practice upon the theory that a formed tooth, as first erupted, will accept a gold filling of the higher specific gravity as readily as it will in later life. And yet his experiments are conclusive as far as they go, and must stand as demonstrated facts."

Dr. Truman says of Dr. Black's work, "Any attempt to express for or against the work of any one when this has been based on

actual investigation would not only be valueless, but the height of folly;" and continuing, he says: "Viewed in any light, the labor of this very able worker in untrodden fields must be held to be most painstaking and thorough," observing, however, that "the controversy between 'soft teeth' and 'dense teeth' has not been settled by these investigations. The color of the teeth, heretofore serving as a guide in determining their structural density and liability to carious attack, is set aside as fallacious. Dr. Black found in the percentage of lime salts in all teeth so slight a variation that it ceased to be the conditional cause why some teeth decay rapidly and others do not. He particularly calls attention 'to the immediate practical value of the general habit of the profession to regard teeth that are seen to be decaying rapidly as soft teeth, teeth that are poorly calcified, and that will eventually be lost on account of their poor quality, to be erroneous, it being a demonstrated error that teeth which decay rapidly are as well calcified, strong, and dense as teeth in which no decay appears, it being emphatically not a difference of the percentage of calcium salts in teeth which constitutes the basis of the difference of their susceptibility to caries;' going on to say that teeth which decay rapidly are sufficiently hard for any kind of filling operations, demanding the highest and best judgment in mechanical treatment instead of substituting something that is easily done."

Dr. Black, in his experiments, finds that man, living upon "natural food, would be able to close his jaws with a force of three hundred pounds, whereas, in a civilized state, and depending upon artificial preparation of foods, the amount of stress that would be borne by each individual tooth, without severe pain or injury, is reduced to one hundred pounds or less in a state of apparent health." He admits that these investigations do not clear up the mystery which will prevent an explanation of the reason "why some people are very susceptible to caries, others less so, and still others immune," but they do clear up a grave misconception as to the influence of differences in the per cent of basic matter as a factor in caries, for heretofore it has been thought in the dental profession that the relative susceptibility of tooth structure to caries was attributed to these differences in the percentage of lime salts that they contain.

Surprises to the profession are continued with the results of Dr. Williams's investigation on the formation of enamel, in which he treats that part of the tooth as a petrified dermal appendage, abso-

lutely lifeless and unchangeable, in contradistinction to the theory of its being a connective-tissue product, related in some way with life-stimulus. He says: "Enamel is a solid mineral substance, and the finest lenses reveal not the slightest difference between the enamel ground moist from a living tooth and that which has laid in the earth a hundred centuries." If this be absolutely true, accepting that the filtration of water from the dentin has no influence upon enamel in holding nutriment matter, it must influence us in our work. This, with Miller's great work in showing the active cause of caries to be local, does not wholly explain the predisposition to points of attack where no local factor resides, also the coincidence of teeth decaying on opposite sides of the mouth in exactly the same position, both being ripe questions which cannot be ignored.

These conditions and the deductions drawn from clinical observation point to some constitutional influence. The local conditions do not explain the facts. Temperamental conditions show no variation in the susceptibility to attacks, predisposition, or the susceptibility of tissues obviously being underlaid by some constitutional dyscrasia that leads to a local lesion by permitting micro-organisms to find a proper habit and bring about tooth destruction.

Dr. Williams says: "The teeth that contain little or no organic matter often decay rapidly. The teeth of many animals and fishes containing a large proportion of organic matter rarely or never decay, which indicates that the presence or non-presence of organic matter is not an important factor in the phenomena of dental caries."

The investigation of Drs. Miller and Black on the subject must be ranked as the most important ever made. Dr. Williams, however, accepts the liability of the human teeth to caries as absolutely due to environing conditions and not to inherent structure, saying that "no tooth will decay if its environment be healthy, and no tooth can resist decay if its environments be unhealthy—unhealthy meaning such particular external conditions as are inimical to the preservation of the tooth." This does not hold good absolutely, clinically, and he falls back upon the assertion that it would be going too far to claim that tooth structure had no relation to caries; "but even such a statement would be nearer the truth than the position occupied to-day by a large majority of the dental profession."

No less surprising are Dr. Black's experiments with gold, showing that the teeth are always harder than gold can be made; and

while he lays much stress upon the physical or cohesive properties in making fillings dense and hard, adaptation takes precedence of all else, for he says, "No matter what the density or strength, in performing the operation this must be the first count," which is borne out by clinical observation.

Since the days when John Hunter first wrote of transplanting teeth, and proved the feasibility of the procedure, to the present the subject of "plantation of teeth," under which head Dr. Louis Jack has grouped the three operations for supplying lost teeth by reembedding them in the alveolar process, has been one of deepest interest to every dentist, and must be to every surgeon particularly. The three operations mentioned are:

1. *Transplantation*.—Where teeth removed from one subject are, with proper precautions, placed in the alveolus of another immediately after the extraction of a diseased or fractured tooth.

2. *Replantation*.—Where any given tooth of a person, for various reasons, may have been removed and, after certain manipulation of the tooth and treatment of the socket, replaced.

3. *Implantation*.—Where an artificial alveolus is made by trephining the process at a vacant place, in which opening a suitable natural tooth is introduced.

I quote these definitions from Dr. Jack, whose admirable paper appeared in the March number of the *Cosmos*, of 1896. It is curious to trace the different steps by which the operation has attained from the time when Dr. Hunter taught that success attended transplantation when the socket was not disturbed, but that the tooth could be filled or whittled to fit, down to the present, when the socket is reamed and deepened *ad libitum*, and a good result may reasonably be expected from implantation if we have a good and practically untouched tooth.

Implantation of teeth was originated by Dr. W. J. Younger, then of California, June 15, 1895, the date of his first operation. The operation has been adopted by a limited number of dentists, but is growing in favor and has come to stay.

It may be contended that implanted teeth do not always stay. In reply we can say that they often do for many years, and those that remain but a few years can generally be replaced by those which will last a few years longer, and so on to the saving of the necessity of wearing plates or having bridges, which to many patients is a matter of great importance.

The operation of making the incision through the gum, forming

the socket, care of the tooth, treatment of the pulp-canal and cavity, the necessity of maintaining in an aseptic condition the patient's mouth, the operator's hand, the instruments, and securely fixing the tooth so as to render it immobile, are all in a line with the attainments of modern surgery. The character of the union and the histological process by which it is brought about are most important scientific considerations.

Dr. Jack observes: "It is unfortunate that in too many instances planted teeth, which have become fixed and useful organs, have, after several years, from causes not entirely clear, yielded to resorption and have become useless. The termination of these cases seems to come on with suddenness and without warning of the resorative process. The cause of this result we have to look for in the depressed trophic state of the environment, in which condition it is not unreasonable to expect tissue of repair to be the first to yield. In any defective condition of the nutritions of a part this result is a consonance with well-fixed principles."

"We have also to consider that the alveolar process is a provisional structure, and that its tendency is, on the occurrence of irritation or of impaired nutrition or by static conditions, to yield to resorption. The fact that it is provisional would impress upon it the tendency to this structural change. Notwithstanding the prognosis of planted teeth is precarious at present, the promise of useful operations is so large when selection is made of subjects in sound health and without cachectic taints, that, where plantation is required for the good of the patient, it should be performed. The probabilities are that greater experience will lead to improved methods and more certain results."

Among the more recent discoveries there is none that has wrought more change in the practice of dentistry than the analgesic properties of cocaine. In fact, it looks as if it would, in a large measure, revolutionize all dental operations, probably not so much through the application of the drug itself, but of the discoveries growing out of its use as a local anesthetic.

Much of the barbarity, thoughtless, and cruel suffering inflicted by the old operators, which rendered familiar the comparison between the dentist's office and the tortures of the Spanish Inquisition, will soon be past history. The demand for painless dentistry up to about two years ago was not met by any scientific or ethical method, but about that time we began to hear, through the writings of Dr. Henry W. Gillett, of Rhode Island, and Prof. J. William Morton,

of New York, of the increased activity of drugs under the influence of cataphoresis, by which cavities of decay of exquisite sensitiveness were being painlessly excavated and prepared for the reception of fillings.

History has revealed the fact that B. W. Richardson, M.D., had an article in the *London Lancet*, of February 5, 1859, on "Electrochemical Anesthesia" in which he described the painless extraction of a tooth by forcing into the gum equal parts of aconite and chloroform by holding the positive pole of a galvanic current in contact with the gum and cotton.

Dr. D. F. McGraw had, in 1887, read an article before the Minnesota Dental Association, describing the same processes as used by this gentleman, using cocaine in the painless preparation of the cavity.

This exhibition of Dr. Gillett's, however, was the first scientific demonstration of what could be accomplished by forcing medicated fluids into the canals of the teeth, and at once men of inventive genius endeavoring to meet the intense interest manifested in the utilization of electricity in dental practise, set to work to produce instruments for the control of the current.

I would be afraid to venture a guess at the number of different instruments in use by the dentists of to-day in the United States by which it is possible to produce cataphoresis. Not only is it possible to excavate and form the cavity in a painless manner, but the pulp of the tooth may be anesthetized and painlessly removed. The same machine is used in diagnosing pulpless teeth and for the purpose of supplying electricity for the mouth lamp by which we are enabled to make use of the inestimable diagnosing agent, transillumination.

We find many other thoughts that would indicate radical changes, but must mention that which if omitted would render this paper incomplete.

With the introduction of celluloid came the revival of the use of single teeth, by which it was possible to make more natural and artistic substitutes; and while celluloid proved itself a failure, it was the outgrowth of a demand for a better material than rubber. All vegetable bases, being porous and non-conductors, do not fill the requirements of an ideal base plate, and these facts have brought about the reinstatement of gold, and recently aluminum, and upon these, with single teeth and the improved rubbers for attachments, it is possible to produce artificial dentures that are far

more durable, scientific, hygienic, and esthetic, requiring skill of a higher order than for vulcanite. In connection with this, we would mention that Dr. J. H. Myers, of the city of New York, has recently brought to the attention of the profession a method of swaging metallic plates over the plaster model, which for accuracy of adjustment and adaptation makes the fit almost equal to the vulcanite base.

In addition to these there have been marked improvements made by the invention of the electric furnace for baking porcelain crowns, and much is expected from it in crown and bridge work.

Of the literature of the profession I would say that the matter of book-making is receiving as much attention as any branch of interest to the profession. There are three works which serve as text-books, each of which has appeared in its third edition within the past eight years. This fact alone is an evidence of the rapid strides that are being made in dental literature and investigation. The periodical literature of the profession ranks with that of any other profession, and liberal use is being made of the assistance of the artist to properly portray the thoughts of contributors, and the growing number of journals and the increased demand for them would indicate that these efforts are being appreciated.

UNION OF THE AMERICAN AND SOUTHERN DENTAL ASSOCIATIONS.

BY THOMAS FILLEBROWN, M.D., D.M.D., BOSTON, MASS.

THE American Dental Association was formed as a more perfect organization to succeed the American Dental Convention, which it soon supplanted.

The Southern Dental Association was organized to supply a need that can now be better met by one large truly national body.

Both Associations have done good work, and each has supplied a want existing in the professional life of this nation.

Both have been practically local societies, through ostensibly national. The Southern has been limited by its name and its practise. The American has continued too much an Eastern institution, and has hardly kept pace with the march of progress. Its methods no longer serve its best interests; and there need be no surprise at the loud call that is heard for a reorganization and the adoption of methods that shall infuse new life into its councils.

The vital question to-day is, how to form and organize a society which shall be truly national, and serve the needs of the dental profession of this country.

The most natural course seems to be a union of the American and Southern Dental Associations in one strong, national society, with a constitution which protects all interests, invites the best efforts of all its members, and provides for progress and enlargement in the future.

The profession united in one national association will respect itself more than it can while divided, will be more influential at home, and thus be able to do more to elevate professional character, and make the influence of the dental profession in America more potent in all its relations with the world.

The social element is one of the most powerful forces for the progress of humanity, and this will be greatly strengthened by union. Only few men feel able to afford the time, to say nothing of the expense, to attend two series of meetings in one season both serving the same end, hence under the present dual organization many are deprived of the satisfaction and benefit of personal acquaintance. In one association the members from the East, South, and West will come together at regular periods, compare experiences, offer mutual suggestions, and enlarge, deepen, and strengthen their personal relations. All those who were fortunate enough to attend the union meeting of the American and Southern Association in Louisville, in 1888, realized how pleasant it is to dwell together in unity.

By union the importance of the state societies will be enhanced, as the meetings of the larger body in each section of the country will be less frequent; the leading men of each state will naturally interest themselves in their home societies and make their proceedings more valuable, and thus be more able auxiliaries to the National Association.

In 1894, at Old Point Comfort, the American Dental Association appointed Thomas Fillebrown, J. Y. Crawford, Louis Jack, B. Holly Smith, and J. N. Crouse a committee to promote the cause of union of the two Associations, and invited the Southern Dental Association to appoint a like committee for the same purpose.

In response to the invitation, the Southern, at its meeting in Atlanta in 1895, chose Drs. L. G. Noel, E. P. Beadles, J. T. Calvert, F. Peabody, and J. R. Knapp a committee to consider the subject with the committee of the American. These committees have

sought to obtain a consensus of opinion as to the desirability of union and the essential points of a plan which would prove acceptable to the members of the Associations, which would protect the interests of the minority, and at the same time provide the best working plan at the present time possible.

At first considerable opposition to the movement was expressed. The opposition seemed based upon the fear that rights would be denied the minority and also upon affection for the old Associations. As the matter has become better understood opinion has been more and more favorable to the movement. The votes of both Associations, although not decisive, have invariably been favorable to a union.

A plan including the following provisions meets with quite general acceptance:

1. It seems desirable to take a new name, one distinctly national; just what it should be has not yet appeared. The committee invites suggestions from any member interested.
2. Divide the country into divisions, South, East, and West, and meet alternately in each section. This will insure a meeting in each portion of the country every third year.
3. Organize the new Associations in sections the same as the American is now, but have the President (or Executive Committee) appoint Chairmen known to be competent and interested to do the work. It is believed that this would lead to more effective and better work. Often in the past but few would be present at the organization of the sections, and men neither fitted nor interested would be chosen to official positions.
4. A return to the old committee plan has been sometimes advocated. This plan has been followed in the Southern, and the results of the past few years have not been especially encouraging for its adoption in a new Association. The plan of sections above proposed contains the essentials of the committee plan, but it makes it obligatory upon every member to join one of them, and insures an efficient head to organize and lead the work.
5. A more intimate relation with the state societies may be promoted by providing that they become practically branches of the National Association, and also by making it the duty of societies sending delegates to make a report of the year's work of the society to the Association.
6. Provide for membership of permanent delegate and honorary members as the American Association does now.

7. Choose a President at large, or from the section in which the last annual meeting was held.

Choose one Vice-President from each section, the Vice-Presidents to be of equal rank, and not first, second, and third, as is now the case in both Associations.

8. To many it seems desirable to change the date of the meeting to some time in September, so that members will come fresh from their vacations ready for work, instead of tired out at the end of an exhausting year. The change would also avoid the excessive heat of August.

While the College Faculties Association and the National Board of Dental Examiners have done a great work for the uplifting of the profession, they have thus far been a direct injury to the interests of the National Assosciations.

The Southern has suffered because so many of her members have necessarily neglected its meetings to attend the meetings of the Faculties and Board of Examiners, which have heen held at the same time and place as the meetings of the American. The American has suffered severely by the meetings of the Faculties and Board of Examiners overlapping its meetings and absorbing the attention of otherwise active members.

This can be remedied in one of two ways, either by the Faculties and Examiners meeting at another time than that of the National Association, or by the meeting being held a week earlier at the same place as the National Association. The latter plan is very likely to be tried the present year, and its effects can be then prop-erly estimated. It is quite reasonable to expect the meeting of the Faculties Association to be called as early as the Friday before the time of the meeting of the American and the Southern Associa-tions at Old Point.

If the Board of Examiners shall also meet early, the work of these bodies will be completed, and the members be left free to en-gage in the work of the National Association.

This is certainly one of the most important considerations for the interests of all concerned.

Dr. W. C. Barrett, at the last meeting of the American Associa-tion, and Dr. A. H. Thompson, in an article in a late issue of the *Dental Practitioner and Advertiser*, and several other interested mem-bers, have expressed the conviction that division associations should be formed to meet annually as parts of the national society. It is undoubtedly a wise and desirable thing to do, and it seems now

quite possible to carry out this idea by providing for it somewhat as follows:

1. The members of each division (South, East, and West) may form one or more branches to meet annually except the year the National Association meets in the same division.
2. Each branch shall manage its own affairs subject to the constitution and regulations of the parent society; elect its own officers and pay its own incidental expenses.
3. Each branch to receive delegates from societies within its limits, and they shall have the same standing in the National Association as those joining direct from local societies.
4. The proceedings of the branches to be sent to the National Association for publication in the transactions of the year.

The details of a plan to accomplish this result can be arranged which will not interfere with the customary working of the National Association. This plan will prevent the destruction of the present societies, and thus remove the principal objection that has been raised against union. One branch would be practically the Southern Association, and the Eastern would include a large proportion of the American membership.

The West might reasonably form two branches, the Western branch and the Pacific branch. Eventually the best interests of the profession may be served by making four divisions of the country. At present we shall probably better succeed with three.

This article does not presume to be exhaustive, but only suggestive.

The discussion of the subject will show us the best way.

The committee has no plan nor desire save to formulate the wishes of the members of the two Associations and invite suggestions as to the points mentioned, or any others which it seems desirable to have considered.

Selections.

SOME THOUGHTS ON THE CARE AND MANAGEMENT OF THE DECIDUOUS TEETH.*

BY S. H. GUILFORD, D.D.S., PH.D.

Mr. President and Fellow Members: Wordsworth has beautifully said, in his poetic way, "The child is father to the man." If this be true, and it doubtless is, that the character, temperament, and possibilities of the future man are shadowed forth in the earlier years of child-life, and that conversely the tendencies and proclivities, as well as the training, of childhood will affect and determine the character of the future man, may we not justly conclude that in a more material way the physical condition of the child will, to a great extent, determine the well-being of the man?

Weakly children do not usually develop into strong adults, nor vigorous children into delicate men. Of the various organs upon whose normal functional activities the health of the adult depends, none, perhaps, are more important than the organs of mastication, which guard the entrance to one of the most important of all organs: the stomach.

In health the importance of the teeth is not apt to be fully appreciated, but in their absence or with their activities impaired the resultant ills not only emphasize their usefulness, but often do it in a painful and health-destroying way.

The health of the individual, however, so far as the teeth are responsible, is not alone dependent upon or influenced by those of the permanent set, for the deciduous teeth play an earlier and most important part in determining the future well-being of the individual.

With mastication imperfectly or indifferently performed in childhood the stomach often becomes so weakened in functional power by overtaxation as to never fully recover its normal condition. So, also, the suffering that the child is subjected to through decayed and tender dental organs will often produce a permanently deleteri-

* Read before the Academy of Stomatology, Philadelphia, December 22, 1896.

ous effect upon the delicate nervous organism, and modify, if not entirely change, the natural disposition of the individual.

Less serious, though perhaps scarcely less important, is the humanitarian side of the question, which leads us to regard the comfort of the child as well as its health.

In view of these facts the care and preservation of the deciduous teeth become an all-important matter to the child, and a subject worthy of most careful consideration on the part of ourselves as practitioners.

As to the care of these organs, two essential points present themselves. One is that of instructing the parent how to properly brush and cleanse them; and the other, that of impressing the importance of regular periodical visits of the child to the dentist for the examination of the teeth and receiving advice concerning them.

The cleansing of the teeth of young children should be done with a small and soft brush, and performed twice daily, morning and evening, by the mother or nurse. It should be done regularly, carefully, and conscientiously; and while the child may not understand the object of it, a habit will gradually be formed that will lead to its continuance in after years.

The visits to the dentist should not be less frequent than four times a year, upon which occasions most careful examinations should be made for caries, all discoloration or stain removed, and the indications of the eruption of the permanent teeth watched for.

These regular visits, unattended by pain, discomfort, or fatigue, will not only accustom the child to the surroundings of the dental office and forestall any natural dread, but they will lead to the establishment of relations of intimacy and confidence between the practitioner and his little patient, which will make future and less agreeable operations easier of accomplishment.

When incipient decay is noted, either upon the exposed or approximal surfaces of the teeth, it must be removed at once, and when minute cavities are discovered they will have to be filled. The frequent visits will lead to the early discovery of decay and its easy remedy. So, too, when the time arrives for the shedding of the teeth, the practitioner can notice their gradual loosening, and at the proper time remove them. With the confidence of the child once secured, the extraction of a loose deciduous tooth can easily be accomplished.

In this way, by means of the regular visits of the patient and the careful scrutiny and faithful service of the practitioner, the child,

if of average health, should be enabled to pass through the period of early childhood without suffering or discomfort, and reach the time of youth with the dental organs in the best possible condition. Unfortunately for us, however, and for our patients as well, no such Utopian conditions exist, and we have to accept things as they are and not as we would have them. While we can see the little members of our regular families periodically, and carry along their dental organs in the easy and comfortable manner just outlined, in too many cases they are only presented at long and irregular intervals, after caries has made serious inroads and the organs are more or less permanently injured. This makes our task more difficult and involves a more trying ordeal for the patient.

The one operation most frequently called for in the deciduous as well as the permanent teeth is filling, and the question at once arises as to how we may perform the operation with the minimum of pain and discomfort and the maximum of usefulness. Owing to existing conditions the procedure must vary considerably from that followed in operating upon the permanent teeth, both in regard to details and the character of materials employed.

Gold, the mainstay of the operator for the permanent teeth, is virtually interdicted for the deciduous ones on account of the difficulties of its introduction, and we are, therefore, forced to depend upon materials of a plastic nature. Fortunately, however, these materials, though of such limited durability, can, in the hands of the skilful, be made to serve the necessary purposes during the comparatively short period that these organs remain in active service.

Of the plastics most commonly used zinc phosphate is the least valuable on account of its slight durability and the danger of pulp devitalization that usually attends its employment. Being easy of preparation and introduction, its use is far too common, although occasionally it serves a valuable purpose in large cavities with frail walls, where other materials would be most difficult of introduction and retention.

Amalgam is not a sightly substance when placed in contrast with fair tooth substance, but its durability, together with its rapid and easy introduction, renders it of greatest service to us in the posterior teeth, where its inharmony of color will not be apparent, but its employment in the anterior teeth is uncalled for and totally unjustifiable.

For the incisors and cuspids we have in gutta-percha a material

without a peer. Although more difficult of introduction than the other plastics referred to, it is far more durable than zinc phosphate, is non-irritant, non-conductive, and easily repaired or added to. For many years your essayist has made it an almost invariable rule to employ amalgam for the posterior deciduous teeth, and gutta-percha for the anterior teeth.

Complications are frequently encountered, however, that tax our skill and ingenuity to the utmost in our endeavors to save these teeth. After excavation the pulp is often found to be nearly or quite exposed, and in other instances it has become devitalized and abscess has supervened. How to treat these conditions to the best advantage of the patient often presents a serious problem.

If it be important to preserve the vitality of a pulp in the permanent teeth, as most of us will agree, it is even more so in the deciduous set; for while in the one case it is no difficult matter to devitalize and remove a pulp and successfully treat and fill the root-canals, in the deciduous teeth the operation is beset with many difficulties, and the after good results are not by any means as certain. Besides this, we must remember that while a healthy devitalized permanent tooth will be serviceable and not interfere with nature's processes, a deciduous tooth similarly conditioned often materially obstructs the physiological changes incident to second dentition, for, in most cases, after the death of the pulp the normal resorption of the root ceases. This might prove of minor importance were it not that the condition seriously impedes the eruption of the permanent successor, often causing it to erupt out of its normal position and producing irregularity.

With these facts in mind, it behooves us to employ our best skill to preserve the life of the pulp in every case where it is possible. This can in most instances be done by the usual method of capping; and while the operation is attended with difficulties not met with to the same degree in the permanent teeth, it is always worthy of our best efforts.

Where the devitalization of the pulp is unavoidable, it should afterward be removed with the greatest care and the root-canals treated antiseptically and filled.

In my own practice I obtain very satisfactory results by packing the canal as tightly as possible with cotton and iodoform paste. The method pursued by some, of allowing the dead pulp to remain and then drilling a vent below the gum-line for the escape of the gaseous products of decomposition, is unscientific in character and

disgusting in results; whereas the other practice of removing the pulp and leaving the canal unfilled is simply to invite future trouble, with small chance of being disappointed.

In the treatment of abscess at the roots of the deciduous teeth we meet with our greatest difficulty, on account of the tender years of the patient, the large apical foramen, and the uncertainty of the result. However, if the patient be tractable, it is best to put forth the effort to cure, and, if unsuccessful, we have at least the last resort of filling the root antiseptically, and thus lessening, if not remedying, the disease. Where the tooth thus affected is approaching the period of displacement, and the condition is not attended with discomfort, we may be justified in non-interference.

In extreme cases of suffering, where relief can not be obtained in any other way, extraction may be resorted to; but it should in all cases be a last resort, for the removal of any of the deciduous teeth before the proper time will frequently lay the foundation of irregularity in the permanent set.

One point remains to be touched upon, and that is the form in which the approximal surfaces should be left after filling. A few practitioners believe that the contour should be restored as in the permanent teeth and for the same reasons; whereas others, and the majority, practise permanent separation, for the reason that it simplifies the operation and is likely to work no harm in the short time that these teeth are retained.

I believe the latter plan the wiser and better one, all things considered, but in either case it appears reasonable that a permanent separation should be made between the deciduous second and the permanent first molar where the former has become decayed upon its distal surface. In almost all such cases the mesial surface of the permanent tooth is found to have been injured by caries, and its extension can best be checked by the prevention of subsequent contact.—*International Dental Journal.*

PYORRHŒA ALVEOLARIS.*

BY A. W. HARLAN, M.D., D.D.S., CHICAGO, ILL.

THE subject of pyorrhœa alveolaris has occupied so much of recent dental literature that it seems unnecessary to recapitulate the views of the various authors who have devoted more or less time to

*Read before the Chicago Dental Society.

the subject in the past year or two. You are all familiar with the uric acid and gouty diathesis theories of a certain school of pathologists, and also with the views of those who believe in the local origin of this disease. Without entering into a disquisition for or against the constitutional origin of pyorrhœa alveolaris, your essayist this evening would first call to your minds one of the points in favor of the almost exclusively local origin of this affection of the periodental membrane. It has been noted for many years past by other observers, as well as myself, that when a tooth has been extracted from a diseased socket, one that is known as a pus-flowing socket, immediately or very soon thereafter the disease is arrested the socket heals, the tissues become firm, and there is no further local evidence that the disease was ever present. If the initial loosening of a tooth or teeth is brought about through the agency of excess of uric acid, why would not this have continued after the extraction of a tooth or of the teeth?

If the uric acid and urea are not decreased to the normal quantity that is secreted daily in an average normal man or woman, there is no reason to suppose but that the tissues adjacent to the sockets would become debilitated, and that the pus-flowing pyorrhœa alveolaris would exist in the gum outside of the periodental membrane. Uric acid, according to my observation, causes a general recession of the gum without the production of pouches or pockets. In no case is pus to be found under the edges of the gum.

As a matter of fact, the pus that is produced around the root of a tooth and between the periodental membrane and the cementum cannot be produced through chemical agencies, or through excess of uric acid in the system, as according to the most recent bacteriologic knowledge on the subject of pus formation there can be no pus produced anywhere within the human body except through the agency of micro-organisms. We have numerous examples of the presence of the so-called pyorrhœa alveolaris, not only in the mouths of the robust, but in the mouths of those in moderately good health, not exactly in a strict anemic condition, and we have still further examples of pyorrhœa alveolaris in the weak, the feeble, the debilitated, and the aged.

Now if the disease of the socket is strictly of constitutional origin, why do we have so many examples of robust, well-fed, well-exercised, well-nourished people presenting undoubted cases of loosening of the teeth, accompanied with the usual serumal concre-

tions on the surfaces of the root, a flow of pus, and all of the concomitant symptoms?

According to our observations, extending now over many years, and having covered a large number of cases—hundreds of cases of true pyorrhœa alveolaris—we have come to this conclusion: that the etiology of pyorrhœa alveolaris, while it may be more or less obscure, has a more reasonable basis for its understanding when the contention is made that it is of hereditary, local, or infectious origin, and that there must have been an injury antecedent to the beginning of the destructive agencies which we always find present around the roots of teeth. It may be, in some instances, that this is due to the use of drugs, to the unwise extraction of a single tooth or two teeth, to malfitting of a rubber or other artificial denture, to the mal or badly fitted bands and springs and wires in the regulation of teeth, to the injudicious use of toothpicks, to the use of coarse tooth-brushes, to the use of corrosive insoluble dentrifrices, to the misuse of wedges between the teeth, or the application of clamps; in short, to anything that would have a tendency or would actually destroy the natural festoon and interproximate gum tissue filling the interproximate space.

In all of the cases that I have examined carefully with fine broaches and probes I have always discovered that, if there were a pocket along the side of the root of a tooth, there was a minute opening at the gingival margin, and that pockets did not exist on the roots of teeth above the gingival margin, save in a few isolated cases due to trauma, and the pathogenic micro-organisms which are always present and ready to produce pus under such conditions would be present there, and these pockets would not be open pockets, but would be more nearly allied to what might be considered to be a false alveolar abscess—that is to say, a pocket without an opening or sinus, and the pocket gradually growing larger and larger until the integrity of the superimposed tissues was finally destroyed, and there would never be an outlet from the alveolar process and the gum. I have seen a number of cases of this kind. I have seen many cases, specimens of which I will now exhibit, of serumal calculus attached to the sides of the roots of teeth and over the apices of roots.

These specimens of calculus differ entirely from the ordinary salivary calculus which is attached to the necks of teeth, and in some cases to the crowns when they are not much used, or by infrequent brushing, and it is deposited more particularly on the

lingual surfaces of the inferior incisors and the buccal surfaces of the superior molars. The difference between the mechanism of its deposition on teeth and the mechanism of the deposition of serumal calculus on the roots of teeth is this: In the one case it is purely chemical and mechanical—that is to say, the chemical throwing down of the carbonates and the inorganic substances which are readily seized by the leptothrix buccalis clinging to the neck of the tooth causes the salivary calculi to become firmly attached to the crown and neck of the tooth, displacing the periodontal membrane in a purely mechanical manner; this without the production of pus and without the assistance of the pathogenic micro-organisms. In the other case the serumal calculus is deposited slowly at or near the point of irritation and infection. We see on the sides of the roots of teeth little granules and islands and spots of smooth, shining, sometimes transparent sheets, even of serumal calculus.

In other cases the granules are more or less roughened, but when it is deposited at or near or over the apex of the root of a tooth the shape of the root is such that it is more or less globular or rounded and is generally, after a time, smooth, hard, and dense, and it is never white or whitish or grayish, or even grayish brown. It is always brownish black, or even nearly black. If this calculus is not deposited directly from the blood, we are at a loss to account for its deposition. The known constituents of the blood which would cause this to have its blackish appearance would be iron and sulphur, both of which substances seem to be present by chemical tests in these deposits. If this were a truly constitutional disease, these deposits would be more or less uniform on all the teeth. As a matter of fact, if we see the cases early enough, we find that even the soundest tooth, one firmly fixed in its socket, if it has the initial lesion around the gingival margin, will be one that will be attacked just as likely as though it were an isolated tooth, having little or no support or opposition. If this disease were of truly constitutional origin and dependent upon some constitutional malady, instead of one tooth, or two or three teeth being affected, they would all be affected uniformly. As a matter of fact, we frequently find one, two, or three isolated teeth having no antagonists that are perfectly sound, and in the same mouth we will have one, two or more teeth having all of the symptoms of pyorrhœa alveolaris—that is to say, deposits on the roots, pockets or pouches, pus exuding on pressure, and the retraction of the gum, which must follow sooner or later. These prefatory remarks with reference to

the etiology of pyorrhœa alveolaris are simply introductory to what we have to say in regard to the treatment, and are not to be considered as final and conclusive—merely speculative.

In cases that we have from day to day, and week to week, and month to month, we find that anything that has a tendency to improve the general health has a tendency to assist us in our local medication. We have administered many antaeids and agents calculated to destroy the excess of uric acid in the system and to correct various other constitutional and even functional disorders; but in the number and variety of cases that we have seen and that have been treated locally, the greatest successes have come from the absolute, thorough, conscientious, painstaking, diligent searching for the minute granules, sheets and islands of serumal deposits and removing them mechanically from the sides of the roots and the bifurcations and even over the apices of the roots. In these latter cases, of course, it presupposes that the pulps have died, and it will be found in many such cases that if the deposits reach quite or nearly the apex or the apices of the roots it would be a much better practice to destroy the pulps at once rather than to waste time in using local treatment, which will only continue the irritation that would eventually result in the loss of the pulp.

After the thorough removal of these deposits and the thorough irrigation of the pockets and pouches and getting rid of foreign matters and the removal of any necrotic tissue, bony or soft, in these pockets or surrounding them, we have found from numerous experiments with many local agents that the first and initial treatment must be produced through the agency of some powerful escharotic and astringent sufficiently diluted so that it will not destroy the normal or nearly normal tissue, but will destroy the surface or surfaces of these pouches and pockets, and will destroy the micro-organisms present, as well as the spores. It is very essential in these cases that such agents as diluted sulfate of copper, trichloracetic acid, diluted sulfocarbolate of zinc, diluted sulfate of zinc, diluted iodid of zinc be used in consequence of the possession of certain well-known escharotic and astringent properties which many other agents that are escharotic do not possess. For instance, chlorid of zinc is a powerful irritant, much more powerful than sulfate of zinc or the sulfocarbolate of zinc, trichloracetic acid, sulfate of copper, or iodid of zinc, and it is a more rapid destroyer of tissue, hence it is far better to use an agent or agents such as have been previously mentioned rather than to use those

like chlorid of zinc, chromic acid, ethylate of sodium, carbolic acid, lactic acid, etc. Mind you, in the introduction of such agents into these pouches and pockets we must have the pockets thoroughly cleansed, no foreign matter whatever in them. Repeated irrigations of these pouches with diluted boroglycerin, 5 per cent, in warm water, or diluted or saturated solutions of the silicofluorid of sodium in warm water, about 110° F., or a 5 per cent solution of the new boracic acid H_3BO_4 in water, 110 to 115° F. This is something that is absolutely essential, to thoroughly wash out and sterilize and remove everything that is removable by irrigation, and, if necessary, if the pouch or pouches be deep, an incision should be made through the gums opposite the bottom of the pocket, so that a continuous stream or jet may go through and remove everything. Then it is also ready for the injection of the aforementioned constringers, sulfate of zinc, sulfocarbolate of zinc, trichloracetic acid, sulfate of copper, or iodid of zinc. In selecting the respective percentages of the iodid of zinc, the solution should not be stronger than 12 per cent. Sulfate of zinc may be from 14 to 16 per cent; sulfocarbolate of zinc should be between 8 and 10; and the sulfate of copper, between 5 and 7 per cent; trichloracetic, from 5 to 7 per cent. These dilutions of the drugs mentioned from many experiments are more nearly correct than any previous tabulations that I have made on the subject. It is essential that these pouches and pockets be thoroughly injected by the use of a syringe, of course, and preferably a platinum or gold pointed syringe; and if any of the teeth are found loose and vibrating back and forth in the effort of mastication, or if the patient is likely to be feeling of them with his fingers or rubbing them, it is better to ligate such teeth with silver wire, made from pure silver, 67 parts, and pure gold, 33 parts. This can be drawn down to the size of ordinary silver suture wire, a specimen of which I will pass around, and by first annealing it to a red heat, and then weaving figure of eight loops around the teeth, doubling it if necessary, to insure stability, will prevent the patient from misusing these teeth, because if he tries to finger them he will move all of them if he uses sufficient force, instead of one or two. This will be an aid also in holding the teeth in position during mastication. Now a certain amount of oxidation takes place in silver, which will turn this wire more or less black, in some mouths not very black; but that is an advantage, because we have found from numerous experiments that nitrate of silver is a useful agent in cases of this kind in com-

bination with very warm water, and we get the continuous presence of oxid of silver; and it has been found from experiments that have been made in the Johns Hopkins University, in Baltimore, that the pathogenic micro-organisms cannot be cultivated on a silver plate, hence we have every reason to suppose that the pathogenic bacteria, which are always present and always ready to set up a disturbance around the injured gingival margin of the teeth, will be deterred from so doing by the presence of the silver. So we have a therapeutic agent in silver wire, and we have strength by adding gold, and that amount of gold in the wire prevents its corrosion, or we get all the benefit of the gold wire, with the therapeutic effect of the silver. These pockets must be looked after carefully, and it is unnecessary for me to give you any directions with reference to the various antiseptic washes and lotions and so forth that should be used in the mouth, except in so far as this: If you have no choice, direct your patient to take one-half ounce of boracic acid and drop this into a quart bottle; fill the quart bottle with water; take half an ounce of silicofluorid of sodium, and place in another quart bottle and fill this with water. Now when the water has dissolved as much of each of these drugs as will dissolve, have the patient take equal parts of these two solutions, say two teaspoonfuls of each, and add an equal quantity of very hot water, so as to still further dilute these solutions from their saturated solutions, and use that as a wash two or three times daily. If the necks of the teeth are very sensitive from the use of local medication, in addition to this, after the mouth has been thoroughly cleansed, I direct the use of pure carbonate of magnesia, taken into the mouth, nibbling a little of it from the block, a specimen of which I show you. In case the patient does not desire to use the carbonate of magnesia in that way, he or she, as the case may be, can use Phillips's milk of magnesia, which is more expensive, however, and not any more effective. These pockets must be irrigated and reinjected as often as every third day, and as soon as the pus formation has been stopped through these injections, the continuance of the treatment may be summed up by using the following: If we take 5 grains of resorcin, a specimen of which I exhibit, and 5 grains of alumnol, which I also pass around, add 2 minimis of the oil of wintergreen (or any other oil that you may prefer) to the above, then add hot water (by hot water I mean about 110° F., so as to fill the beaker to the 110-minim line), this will give you a little more than a 5 per cent solution of each of the

drugs mentioned with the corrective added; that is to say, the oil. You can use oil of wintergreen, eugenol, cajeput, or any agreeable oil which the patient may like. This should be injected into the pockets for the purpose of stimulating and constringing tissues, so that they will come closely in contact with the roots of the teeth and prevent the further invasion of micro-organisms, and this must be done religiously, and faithfully and patiently every second or third day for three or four weeks, following the cessation of the first-outlined treatment which I have given in this paper. If at any time the teeth do not occlude well, the faulty occlusion should be corrected by grinding or cutting or filing, so there will be uniform pressure all around. If the wires should become corroded and it should become necessary to hold the teeth in position, instead of using a gold band or platinum band, make a band of silver alloyed with gold up to 30 per cent. This may be thin and narrow and may be cemented to the teeth; but if there is any probability of the teeth becoming firm within two months or three months from the time of the beginning of treatment, the reapplication of the silver wire once or twice during the treatment will be all that is necessary. During the course of treatment all dentifrices used should be free from soap or glycerine. The operator who wishes success must be careful to not infect sound gingival margins by using syringes or scalers not thoroughly sterilized. Infection is easy, but disinfection is difficult and tedious in the soft tissues.—*Dental Review, January.*

DENTAL JURISPRUDENCE.*

BY DELANCEY B. ARMSTRONG, D.D.S.

THE general principles of medical jurisprudence apply equally well to the dental practitioner, but there are certain special questions which arise exclusively in dental practise.

Owing to the advance made in dental science, embracing the discovery of many new operations and methods of treatment, increased responsibilities rest upon the dental surgeon, the neglect of which might involve him in litigation, and the knowledge thereof may at some period in his professional career avert a calamity of a serious nature.

Dental jurisprudence may be defined as the science which teaches every branch of dentistry to the purposes of the law;

* Read before the Jefferson Dental Society at Clayton, June 13, 1896.

hence its limitations, on the one hand, are the requirements of the law and on the other, the whole range of dental knowledge, anatomy, physiology, therapeutics, *materia medica*, chemistry, operative and prosthetic dentistry, and oral surgery.

When we begin our studentship we look forward with yearning to the time when we will have acquired sufficient knowledge and experience to be vested with the degree Doctor of Dental Surgery.

Let us inquire what legal protection is afforded to the dentist by the degree, D.D.S. What are the limitations of the practise of dentistry, and what is the legal right of the dentist to administer remedies systemically?

In considering the legal protection afforded to the dentist by the degree D.D.S., two important topics—"the legal right of the dental practitioner to perform any and all operations within the limitations or domain of dentistry," and, "the legal right to administer remedies systemically"—are presented for conclusive legal interpretation and discussion.

In discussing these questions, it is of first importance to describe the "limitations of the practise of dentistry," or, in other words, what may properly be considered as included in the professional duties of the dentist. Undoubtedly, the care of the teeth when sound, the treatment of their deformities when unsound and unhealthy, and the adaptation of substitutes for them when by age, accident, or disease, they are lost. It also includes the extraction and filling of the teeth, and other operations upon them, their alveolar processes, and, in some cases, upon the adjacent bones; transplantation, replantation, and implantation of the teeth; the treatment of the diseases of the teeth, gums, and antrum—surgically, medicinally, or by both. These latter operations mark the limit which separates dentistry from oral surgery. He must be competent to perform any operation, treat any disease or pathological condition pertaining to the dental organs, and adopt and practise such systemic treatments as are promulgated by the body of the profession.

A prominent dentist erroneously asserted that M.D. is the only degree that can protect the dentist in serious results following surgical operations, and that the law will not find him blameless who without this decree essays operations from which evil results follow. This statement is fallacious. That a dentist is licensed to perform any and all operations within the domain of dental surgery, there can be no dispute, providing, of course, that he com-

plies with all the laws and enactments regulating the practise of dentistry in the country, state, or county within which he resides. He is expected to render to his patient the best services and treatment which his ability will allow. The law expects and demands that he be possessed of an average amount of skill and knowledge of his profession; if he lacks that, or neglects to use it judiciously in the treatment of a case, or in a surgical operation, he is liable for malpractice, should serious results follow any operation he may perform.

Like other scientific professions, dentistry is progressive; its field of operations has become extended within late years, and operations which, in former years, were not permissible, are now perfectly legitimate. So, also, with the medical profession. Many operations are performed, perfectly legitimate, which formerly would not have been countenanced by the law, had serious results followed, and had there been a suit at law.

A dentist cannot experiment with his patients to their injury, without liability to damages for the same. But a dentist, in performing an operation or treating a case, may have a new method of treatment or operation suggest itself to him. It may be only a deviation from or improvement upon an old method. However, if he has good reasons, and could prove that it possessed advantages over the old method, he is privileged to practise the same, or, when such operations become popular and accepted by the body of the profession as practical and beneficial to mankind, then, and then only, is he, according to the accepted views of the courts, licensed to perform them. In certain operations, the circumstances may vary; each case may present novel features, and of course it is not to be expected that every one will be successful. However, the physician or dentist will not be held liable for adverse results if he can prove that he pursued the course of treatment or method of operating advocated by others in cases of the same character, and that he used an ordinary degree of skill and knowledge. He can vary the treatment and method adopted by others, if he can give sufficiently good reasons for doing so, and prove to the satisfaction of the court that they are founded on good judgment and authority.

Day by day new operations are discovered, legitimized, and added to the science of dentistry. Those that are adopted and adjudged by the body of the profession to be necessary for the benefit and advancement of the health of mankind, the dentist is expected to practise; at least this is what the community and his patients ex-

pect of him—viz., that he should give the best services and the benefit of any new discoveries in science. In court, the expert testimony, the lawyers, and jury would determine whether such knowledge could be required of one who possessed an average degree of skill and knowledge of his profession, where negligence and lack of this skill and knowledge was the charge against the dentist.

Some dentists doubt their legal right to administer anesthetics. These views are erroneous, as it is expected of the dentist, where he can mitigate or lessen pain, that he should do so; and if the operation demands it, he should administer an anesthetic. We find that the skill demanded of him is held to include all the known rules which the experience of the profession have discovered and advocated. He must thoroughly understand all of the practical details of the operation, which the court would hold to constitute only ordinary skill. If he can prove that he thoroughly understands the modes of administration of anesthetics, precautions to be observed, etc., he is not liable for adverse results, provided he applied his knowledge to the case at issue.

A prominent dentist has made the following erroneous statement: "If a dentist should administer an anesthetic, and the patient should die, what is the result? The physician can give a death certificate, but the dentist cannot." This is absurd. If a patient dies while under the effects of an anesthetic during an operation, the physician must notify the coroner, exactly as a dentist would be required to do, and cannot give a death certificate in such cases. If he cannot prove that he used the requisite skill, he would be held liable, just as a dentist would be under similar circumstances.

Some dentists doubt their legal right to treat cases by internal medication. This belief should be corrected. Dentists must prescribe medicines in certain cases; as for example, in the treatment of carious teeth, or any pathological condition of the dental organs of a patient in an anemic condition, due to improper food and nourishment, where is the well-educated dentist who does not recognize the fact that in order to insure success he must prescribe tonics, perhaps a change of diet, and treat his patient constitutionally, producing a tonicity of the general system? In the South, the dentists prescribe quinine for the cure of malarial neuralgia, without the use of instruments. In trigeminal neuralgia, in most cases, relief can only be obtained by constitutional treatment; and in the severe forms of alveolar abscesses internal medication is absolutely necessary.

If it be granted that the dentist is licensed to treat every disease, and perform all operations in dentistry, how can he be successful if at the very outset he is handicapped by being prohibited from prescribing such remedies as are beneficial, and which the case indicates and requires? If it be admitted that we are licensed to treat all such cases, where can the responsibility rest if adverse results occur in cases where internal treatments have been used, providing a legitimate course of treatment was pursued in the case?

A dentist should certainly be held responsible for neglect if he does not use internal treatment in cases which positively require it, and where failure can be attributed to this negligence or want of skill and knowledge. Of course it is not expected that he prescribe remedies unless he is thoroughly conversant with their effects and the proper mode of administering them.

Dental malpractice may be defined as bad or unskilled practice on the part of a dental surgeon, whereby an unskillful operation is performed, the health of the patient injured, or his life destroyed by the improper and careless administration of medicines or anesthetics.

In the performance of all dental operations the dentist is required to use at least ordinary skill. He must adopt the means and apply the skill and treatment advocated by the highest and best authorities in his profession. Should the practitioner inform his patient of his lack of skill, or should he learn from other means, the patient cannot complain of that which he knew did not exist.

Again, a dentist is not bound to use the highest degree of skill, but he must use reasonable skill and diligence, and in judging of this, regard must be had to the recent advancements and improvements.

A dentist cannot experiment with his patients, and must exercise judgment and care in undertaking to perform a new operation, or to use a new instrument. Should injury result from experimentation with new instruments and methods, he can be held liable in damages for the same.

The law recognizes a difference existing between the relative skill and knowledge of a specialist and a non-specialist. A dentist announcing himself to the public as a specialist in any branch of dentistry, whether in bridge or crown operations, diseases of the mouth, administration of nitrous oxide gas, orthodontia, or operative dentistry, is by law supposed and expected to possess more than the ordinary skill or knowledge of the subject required of a general

practitioner. He is expected to possess and practically use the highest skill and knowledge that his profession has attained on the subject.

In regard to services and the compensation for the same I find that a dentist cannot be compelled to render service to a patient when requested, but when once he has taken a case he must continue his services, unless dismissed, until other attendance can be obtained, even if the services be gratuitous. A dentist has a right to charge for time lost by an unfilled appointment. The decision of the court will depend upon the circumstances and evidence produced. A dentist has a right to retain a set of teeth made or repaired by him as security for reasonable charges. This lien is waived by parting with possession or agreeing to give credit for them.

Legally no limit is placed on the fee that a dentist may charge for his services. A practitioner may charge more or less, using his discretion in estimating the value of the service which he renders. The value of the services of all professional men is not alike. An eminent practitioner with an established reputation and long experience can reasonably demand a larger fee for the same service than a less-experienced practitioner.

The variety of circumstances—as the nature of the disease, the amount of knowledge and skill required in the treatment, the circumstances under which the services were given, the difficulties and expense attending them, and the responsibility devolving upon him—regulate the value of the services of a professional man.

I think that there is a tendency among dentists to belittle their services, saying to themselves that the fee charged is sufficient, and depriving themselves of the extra remuneration that might be gained if they held a higher estimate of the value of their own work.

In conclusion I would say that the law affords us greater protection, greater latitude for operations, and greater respect for our work, from a pecuniary standpoint, than is generally supposed, and we ourselves are to blame if dentistry does not always stand as one of the noblest and most respected professions.

AN EXPERIENCE IN BLEACHING.

BY DR. FRANK FRENCH, ROCHESTER, N. Y.

MR. P., age forty-six, came to me in the spring of '95 to have his teeth put in order. The right superior central had been dead for

fifteen years; was much discolored; in fact, might be called black, and very unsightly. Discharge through fistulous opening most of the time, and of course absorption of purulent matter by tubuli. Tooth quite loose, and some absorption of alveolus on the labial surface. I regarded the case as almost hopeless on account of the bad color and length of time, and told my patient so. The color was the worst I ever saw, and in thirty years of practice I have seen some bad cases. I told him we could try, but my faith was very small. I did try, and very faithfully, to bleach it. After getting the tooth in as healthy a condition as possible, I tried our old remedies, Labaraque's solution, chlorid of lime, tincture of iodin, and peroxid of sodium, but with very little effect. I have several times had very good results with peroxid of sodium, but no perceptible change could be observed from its use in this case. I also tried pyrozone five per cent and ten per cent solutions, but no change. I had read of Dr. Meeker's experience with caustic pyrozone, twenty-five per cent, in bleaching, and resolved to try it. I adjusted the dam very carefully, so that there could be no leakage, for it is CAUSTIC spelled with capital letters. I had previously filled the root from the apex one-half to one-third its length, permanently, so that there could be no leakage through the foramen. On top of this I packed a small pellet of gutta-percha, so as to protect the filling from the action of the pyrozone; and if it did act on the gutta-percha, it could be easily removed. I then prepared some slivers of compressed hickory, so that there could be no action of pyrozone upon metal, winding the end with a little cotton; dipped the cotton into the pyrozone and placed it in the pulp chamber, withdrawing the stick, and allowing the cotton to remain for one or two minutes; removed it, and with hot-air syringe dried out the tooth, then took another sliver of wood (never using the same one twice) and applied in the same way, using air syringe very thoroughly.

I continued this treatment for nearly three hours, and, although there was some change, I must confess that I was bitterly disappointed, for I had hoped for a great one. I told my patient that I was disappointed, but that I wished to try again; so I filled the cavity temporarily, and, making another appointment, dismissed him. Four days later he came to meet his appointment, and on my first glance into his mouth my surprise was so great that I could hardly speak. The tooth was bleached very nearly the color of the adjoining ones. He said it began to change on the same day upon which I had bleached it, and continued to do so for twenty-four

hours. The change was marvelous, wonderful! I applied pyrozone as before, and after half an hour the tooth was as white as desirable. I then filled the cavity with pure oxychlorid of zinc, finishing with gold, and to-day the difference is not perceptible, unless one's attention is called to it. I am more than pleased with it, and the results so far are very gratifying.

Still I would caution all using it to do so with great care, lest unpleasant results should follow. It should be borne in mind that the great change in color did not take place until some hours after the application of the pyrozone. The cavity should be thoroughly washed with a saturated solution of bicarbonate of soda, after using the pyrozone.—*Items of Interest.*

ELECTRICAL IRRITATION OF FILLINGS.

BY DR. A. H. PORTER, PHILADELPHIA.

VOLTA'S contact force and the chemical are the two rival theories that account for the electricity in a battery. To apply these to dental science, the inference from Volta's proposition is that filling and the tooth produce an electrical tension, and that any fluid existing in a crevice reduces the tension. The generally accepted chemical theory asserts that the fluid is both cause of the tension and release. Hence if Volta's be true and no crevice exist, an anemic tooth is subject to a constant electrical pressure from a filling, which experience proves it will not withstand. Such a force in a stronger tooth will attract a larger blood supply and build dense dentin.

Metallic fillings excite a greater electrical tension than cement.

Volta's position is reenforced by the well-known experiment of soldering metals and noting the opposite action of each on an electrified needle.

The Austen Roberts experiment is more recent: certain metals, when solid, diffuse into each other in time when in contact. Whether any dental author has pointed out the above distinction, the present writer has no knowledge. Dr. Palmer's electrochemical theory draws attention chiefly to the destructive action of fluids electrically decomposed. The facts tend to show that positive electricity is nothing but force in matter of high intensity including light, and that negative electricity is nothing but force of low intensity including heat.

Both light and heat excite electromagnetic vibration. As elec-

tricity ceases to be exhibited in a wire, light and heat appear, showing their identity with electricity.

Light, like positive electricity, discharges negative electricity.

X-ray pictures are taken by the (negative) waves (low vibrations) from a kerosene flame, magnets, ordinary anodes and cathodes, as well as Crookes's tubes.

The well-known experiment of a coin leaving its picture on a highly polished metal surface without pressure and by mere contact is through the same agency.—*International Dental Journal.*

**A HIGH-VOLTAGE CURRENT WILL STOP A THREATENED
ALVEOLAR ABSCESS.**

BY WILLIAM ROLLINS, BOSTON.

THE generator used was described in this journal for October, 1896, when it was recommended to dentists for use in numbing the dentin. Electricians differ in regard to the voltage, one placing it at fifty-seven thousand; another, at two hundred and fifty thousand. The amperage is equally indefinite. When tested before use it ran at a speed of fourteen hundred revolutions, and gave an apparently continuous stream through three-quarters of an inch of air. The patient held the negative terminal in his hand, the positive, covered with cotton, against the most painful place on the palate, which was opposite the apex of the root of the first molar. The feeling of intense cerebral congestion stopped in fifteen minutes; the severe pain, in an hour. The gum, which beat visibly like a heart, became nearly normal. There was no return of the symptoms. In using high-voltage currents the following method will prevent the patient from feeling the least sensation from the strongest current which the generator mentioned will give. In the armature circuit place a switch controlled by one of the feet. Have the current turned on the field. Have the patient hold both terminals in the proper positions. Then start the generator by closing the switch. When the sitting is finished open the switch before the patient drops the terminals.—*International Dental Journal.*

Miscellany.

AFTER all has been said against filling-materials and defective conditions of the saliva, it seems probable that the great majority of our failures arise from either hasty preparation of the cavity or unskilful manipulation.—*Joseph Head, in Cosmos.*

IT is not so much what we learn from others that gives us success as what we acquire from our own thoughtfulness and practise. Information may lay the foundation, but actual manipulation must give familiarity, dexterity, and wisdom.—*Welch's Monthly.*

WE are largely estimated by our fees—that is, the sensible people know that something cannot be had for nothing, and are willing to pay a price commensurate with the value of the work. It may be well said that those who maintain fair prices through all this attempt of advertising to degrade them must have professional character and skill, and entitled to a fair fee for honest services.

—*W. H. Chilson, in Review.*

DOMESTIC fowls have two diseases of a diphtheritic nature, according to a report of M. Gallez to the Belgian Academy of Medicine. One is a contagious catarrh, called also morve or fowl glanders, which is very contagious and fatal to hens, and may give diphtheria to human beings. The other, though called fowl diphtheria, has nothing save the name in common with human diphtheria.—*Scientific American.*

KRAFFT-EBING, of the University of Vienna, according to the *Medical Times*, New York, enlivened his instruction lately by allowing a madman, one of his patients, to lecture on mental diseases in his stead. The man is afflicted by periodic attacks of mania, during which he is much more clever and witty than when sane. His lecture on “The Mental Condition of the Maniac in Periodical Attacks of Madness” was a brilliant success. After it was over he was shut up again.—*Scientific American.*

DR. PAUL GIBIER, a high scientific authority, says: "If this habit of expectorating in public could be stopped, I am sure that in time tuberculosis would die out all together. This seems a very sweeping statement, but it is not an ill-considered one. There is no question in my mind that the spread of tuberculosis is due largely to the habit of spitting. A great many people have tuberculosis without being aware of the fact. They do not know of the danger that comes from ejecting their sputum where it becomes dry and pulverized, and then flies about in minute particles, to be inhaled by healthy persons, who are thus inoculated with the disease. This random public expectoration is a crime."—*Scientific American.*

AN ANTIDOTE TO CARBOLIC ACID.

VINEGAR is an antidote to carbolic acid. When applied to the injured surface it causes rapid disappearance of the characteristic whiteness, as well as of the anesthesia, and also prevents the formation of a slough.—*Prof. Carleton, in Semaine Medicale.*

A BIG DENTAL BILL.

PEOPLE who have acquired the habit of growling at the size of dentists' bills will sympathize with Uncle Sam, who is expected to shell out at least \$250,000 for necessary repairs to the mouth of the Mississippi River.—*St. Louis Republic.*

A HIGHER DUTY.

WE, as dentists, whose duty it is to care for children's teeth when diseased, to watch with great care the permanent teeth advance and take the places of the temporary teeth, have a higher duty to perform, a duty that may not bring us directly any dollars and cents, a duty that costs us nothing, which we can perform as we are about our daily business—the education of our patients in regard to the dental organs.—*Ohio Dental Journal.*

NERVE TENSION.

MANY people wear themselves out needlessly; their conscience is a tyrant. An exaggerated sense of duty leads many a person to anxious, ceaseless activity, to be constantly doing something, over-punctual, never idle a second of time, scorn to rest; such are in unconscious nerve tension. They say they have no time to rest,

they have so much to do, not thinking that they are rapidly unfitting themselves for probably what would have been their best and greatest work in after-years.—*Nashville American*.

ALUMINOID LINING FOR RUBBER PLATES.

DISSOLVE rubber in commercial chloroform to the consistency of thick molasses. Incorporate with this about twice its bulk of aluminum powder (obtained from dealer in art supplies). With camel's-hair brush coat the model with liquid collodion; thin the aluminoid with chloroform till it will flow like paint. Give four coats, allowing five minutes for each coat to dry, and ten minutes or more for the last coat. Pack, close, and vulcanize. Finish with brush and pumice, ending with chalk. Costs but little, requires but little time, and adds much to appearance and comfort of plate.—*G. H. Harper, in Dental Review*.

ADVANTAGE OF SLEEP.

IN reply to the question, Is it wise for a man to deny himself and get along with a few hours' sleep a day, to do more work? Tesla the great electrician, is said to have replied: "That is a great mistake, I am convinced. A man has just so many hours to be awake, and the fewer of these he uses up each day, the more days they will last—that is, the longer he will live. I believe that a man might live two hundred years if he would sleep most of the time. That is why negroes often live to advanced old age, because they sleep so much. It is said that Gladstone sleeps seventeen hours every day; that is why his faculties are still unimpaired, in spite of his great age. The proper way to economize life is to sleep every moment that it is not necessary or desirable that you should be awake."—*Scientific American*.

ANTIRHEUMATIC ACTION OF SALICYLATE OF STRONTIUM.

PURE salicylate of strontium, made by Paraf-Javal process, occurs in white crystalline needles, which are slightly soluble in water and alcohol.

It is this salt only which should be administered internally. It increases the blood pressure, which is not diminished unless the dose is increased far beyond the amount required when salicylate of soda is employed.

Clinical observations show that in doses of five grains its anti-

septic properties are most energetic, and that as an intestinal anti-septic it is superior to salol, naphthalin, and similar antiseptics.

Doses of from ten to fifteen grains in gouty and rheumatic subjects give the same results as other salicylate preparations; but its superiority lies in the fact that it does not interfere with the stomach. It is therefore especially indicated where digestive troubles occur in chronic rheumatism and gout.—*Translated from the Bulletin de Therapeutique for the Dental Headlight.*

A VEGETABLE PUMPING ENGINE.

THIS is the title bestowed upon the ordinary tree by Sir Benjamin Ward Richardson. In a recent address, quoted in *Cassier's Magazine*, he says: "Hydraulic engineers would be sorely puzzled to explain how the large quantity of water required to supply the evaporation from the extended leaf surface is raised to heights up to four hundred feet and above. We know that the source of energy must be the sun's rays, and we know further that, in the production of starch, the leaf stores up less than one per cent of the available energy, so that plenty remains for raising water. Experiments have shown that transpiration at the leaf establishes a draft upon the sap, and there is reason to believe that this pull is transmitted to the root by tensile stress. The idea of a rope of water sustaining a pull of perhaps one hundred and fifty pounds per square inch may be repugnant to many engineers, but the tensile strength and extensibility of water and other fluids have been proved experimentally by Prof. Osborne Reynolds and by Prof. Worthington and others."—*Scientific American.*

THE MOST EXPENSIVE PRODUCT IN THE WORLD.

"As a matter of curiosity," says Consul Morris, of Ghent, November 12, 1896, "I forward the following translation of a statement recently published in European newspapers, showing the article which, it is claimed, sells at the highest price in the world:" "What is the most expensive product of the world?" inquires Mr. Wilfrid Fonvielle. He answers: "It is charcoal thread (*filament de charbon*), which is employed for incandescent lamps. It is, for the most part, manufactured at Paris, and comes from the hands of an artist who desires his name to remain unknown in order to better protect the secret of manufacture. It is by the gram (15½ grains) that this product is sold at wholesale. In reducing its

price to the basis of pounds, it is easily found that the filaments for lamps of thirty-candle power are worth \$8,000 per pound, and that for lamps of twenty-candle power they are worth \$12,000 per pound. The former have a diameter of twenty-thousandths of 1 millimeter (1 millimeter equals 0.0394 inch) and the latter four and one-half thousandths of a millimeter. The filaments for lamps of three-candle power are so light that it would require nearly 1,500,000 of them to weigh a pound. As the length of each of them is ten centimeters (3.937 inches), their total length would be one hundred and eighty-seven miles."—*Scientific American*.

WHY PHYSICIANS SHOULD SHAVE.

"It may be claimed by some," writes Dr. W. A. Hockmeyer to the *Medical Brief*, December, that "the beard is provided by nature, and should be allowed to remain. So it may be with the layman, but when with the faculty it might prove a serious means of contagion, it were better that no chances should be taken. In listening to the action of the heart, or in making other examinations, the face of the examiner must necessarily come in direct contact with the person or clothing of the patient, and a bearded face would be much more liable to be affected thereby than the cleanly shaven skin. Dr. Marion Sims was under the impression that disease had often been conveyed by this means, and was always a firm believer that the less the face was encumbered the better it was for both the doctor and patient. There is, beyond all that, this fact, which can not but be generally admitted: the perspiration of summer and the frosted breath of winter, or the dampness from rain in all seasons, are not pleasant things for a doctor to carry into a sick-room. In winter he may divest himself of his overcoat and hat in the hall; but the beard, with the effects of the outside atmosphere, can not be so easily laid aside, and oftentimes, especially if the call be a hurried one, the patient may become nauseatedly aware that the doctor was interrupted in the enjoyment of his pipe."—*Scientific American*.

Editorial.

LOUISIANA STATE DENTAL MEETING.

THE old trouble of a few members doing it all showed itself as clearly as in other States. —

The Louisiana State Dental Examining Board held its annual session concurrently with the State Association. Several applicants gave the Board opportunity to know that honor and hard work go hand in hand. —

One feature practised by the Board was quite noteworthy. The applicants for license to practice are expected to render the usual services to patients, on the spot, during the session of the Board, upon which judgment is based for issuance or non-issuance of license. —

If this excellent idea is in operation anywhere else, we do not know it. At any rate, with this commendation, which we voluntarily make, we would suggest that it be resorted to universally as a most excellent plan to give all young men a chance to work between sessions, and at the same time protect the people they would serve. —

The absence of Drs. Kells and Rollo Knapp from the Association meetings was a matter of surprise and regret to those visiting the Association. They should certainly give of their abundance to further the elevation of dentistry, and at the same time help the younger material by precept and example. —

If Dr. Edward Kells has not outstripped all others in giving practical utility to the X-rays in the practice of dentistry, we are much mistaken. On the presumption that this is true, we wish to not only thank him on behalf of our profession, but also to congratulate him upon his professional enterprise. —

What he does is to make practically clear shadowgraphs or scia-graphs, as he calls them, of the *roots* of teeth, or of teeth themselves when they are not erupted, so that all doubt of procedure is

removed, whether it be to give direction to force for extraction of the roots or certain knowledge of the tardy tooth's whereabouts. In the field of orthodontia such certainty is worth everything, and almost gives the operator unlimited opportunity.

The scheme to found a school of dentistry in New Orleans seems to be another case of "if wishes were horses, beggars would ride." It takes both money and time, as well as ability, to establish a school so special as professional work; and the causes that operate to the disadvantage of a school, once it is successfully launched, do not show themselves in advance, but begin their insidious attacks low down and keep everlastingly at them. Dr. A. G. Friedrichs struck the key-note when he said "that when they could pay him a good fat salary he would favor it, and not before."

TENNESSEE CENTENNIAL EXPOSITION.

THE one hundredth anniversary of the admission of Tennessee into the Federal Union will be celebrated during the present year by an Exposition, which will be second in importance only to the great Chicago World's Fair. From present indications it will be more than a mere sectional affair, having already assumed national and even international pretensions. The Federal Government, the State Legislature, as well as Davidson County and the city of Nashville, have made liberal donations to insure the success of the affair. Also many of the states of the Union and foreign countries have contributed liberally, and will make handsome exhibits of their resources at the coming Exposition. The educational exhibit will be one of great interest, especially the Dental and Medical Departments of the Vanderbilt University, and the Medical Departments of the University of Nashville and of the University of Tennessee. The great show will open on May 1. The editors of the DENTAL HEADLIGHT cordially extend an invitation to their patrons and the profession generally to visit Nashville's "White City."

THE GREAT SOLAR PLEXUS OR ABDOMINAL BRAIN.

THE recent fight between Fitzsimmons and Corbett, resulting in the defeat of the latter, demonstrates the correctness of the opinion of the ancients that there is another important vital center besides that contained within the skull, and which we of the present day are disposed to regard as the most vulnerable portion of the human

body. Fitzsimmons struck Corbett a "knock-out" blow by hitting him below the heart. In doing this he struck the "great solar plexus," composed of nerve cords connected with two large masses of nervous matter, known as the semilunar ganglia, situated behind the stomach, within the abdominal cavity, and called by the ancients the abdominal brain. Sir Charles Bell, the great English authority upon the anatomy and physiology of the nervous system, compares the nervous system to an ordinary dumb-bell the enlarged portions being situated within the skull and the upper portion of the abdomen just below the heart. Indeed, he states that the amount of nervous matter in this region is almost as great as that contained within the cranial cavity. A strong blow over this region has often proven fatal. Prof. Austin Flint records a case which resulted fatally. Two negro waiters at the Galt House, in Louisville, Ky., were engaged in a friendly fisticuff after dinner, when one struck the other a blow over the stomach, killing him outright. A blow in this region paralyzes the diaphragm, the principal muscle of respiration; also, on account of the proximity of the heart and stomach, both being supplied by the same system of nerves, the heart is frequently paralyzed, and hence the fatal result. In the recent fight Fitzsimmons's wife was an interested spectator. She cheered her husband, urging him to strike Corbett *in his wind*, evidently believing this to be a vulnerable point, and the wisdom of the woman in this instance at least was verified. The next most dangerous point, according to Corbett and other pugilists, is a blow upon the angle of the lower jaw, whereby the brain within the skull receives the shock, thus producing concussion of the brain, often with fatal results.

A. M.

I HAVE often been asked what is the best method of banding a Logan crown. That is a hard question to answer, but I will briefly explain how I do it: We all recognize the fact that when properly adjusted the Logan crown is one of the strongest we have, but fitting it is where we have the trouble. After having selected the tooth for the case I prepare the root to receive it the same as for a Richmond crown, making the sides parallel or slightly conical, and cutting the root slightly under the gum, the end being finished with a root-facer. I next make a tight-fitting band of 22k 30-gauge gold, only letting the band extend under the free margin of gum. Next prepare the canal for the pin and proceed to grind the crown until I have secured the proper length and position of tooth.

Remove the band and solder a piece of 24k 34-gauge gold on end, letting it project slightly in all directions, particularly to the lingual and labial surfaces, placing it in position on root, puncture the cap, and force the pin through and the crown to position, remove the cap with crown, and you will see the difference in size of the root and crown. Grind the neck of crown, reaming it to as near the size of band as possible, and fit a second band tightly around the porcelain. Replace the cap on root and trim band on crown until a joint is made with the tooth in position, remove the cap with tooth, and with hard wax unite the band to cap, and remove the porcelain. Wire the two pieces together and solder the band to cap, putting the solder on the outside of band. Finish up the edge and cement the band to crown and on root. One of the advantages of this method is that, should the root be out of line, the crown can be set at any angle to strengthen it. J. A. D.

WE clip the following from an Aberdeen (Miss.) paper:

Last Sunday morning little Alvin, the six-year-old son of Dr. D. B. McHenry, was building a fire at home when his clothing caught fire. In a moment the little fellow was enwrapped in flames that would have been very near proving painfully dangerous, but his loving father rushed to his relief, and began stripping the burning clothing from his body. Soon the flames were extinguished, but not until little Alvin had received several burns about the stomach, chest, and neck. Dr. McHenry also had both hands severely burned—his left hand being frightfully roasted. As a result of the unfortunate occurrence the Doctor received a severe nervous shock, and he and his little son have been confined to their beds, though both are now resting easy and on the road to recovery. We sincerely sympathize with the victims of this untimely mishap, and hope that both will soon be well and up again.

BOOK NOTICES.

ARTIFICIAL ANESTHESIA. A Manual of Anesthetic Agents and Their Employment in the Treatment of Disease. By Lawrence Turnbull, M.D., Ph.G., Aural Surgeon to the Jefferson Medical College Hospital, Philadelphia; late Honorary President to the Otological Subsection of the British Medical Association, and of the Section of Laryngology and Otology, of the American Medical Association. Fourth Edition, Revised and Enlarged, with Illustrations. Philadelphia: P. Blakiston Son & Co., No. 1012 Walnut Street. 1896. Price, \$2.50.

The fourth edition of Dr. Turnbull's work upon artificial anesthetics is, if anything, more complete than any of the former editions. The popularity of the former editions attests its value as a reference book upon this subject, and the idea of placing all available information upon artificial anesthesia in a volume to itself is

certainly an excellent one. The chapters devoted to the discussion of cocaine and cocaine poisoning are of especial interest to dentists. Many of us have seen the most alarming symptoms arise during its administration even in minimum doses, and are frequently at a loss afterward to know whether the cocaine or hysteria was really the cause of the symptoms. The case reports and death statistics upon cocaine are particularly valuable, and the methods of resuscitation should be known thoroughly to each one of us that purposes to use the drug in practice. We can heartily recommend this volume as a work which covers the whole subject completely, and we frankly say that no anesthetizer can afford to be without it.

B.

A PRACTICAL TREATISE ON ARTIFICIAL CROWN AND BRIDGE WORK. By George Evans, Lecturer on Crown and Bridge Work in the Baltimore College of Dental Surgery; Member of the American Dental Association, of the Southern Dental Association, of the Dental Society of the State of New York, of the First District Dental Society of the State of New York; Honorary Member of the Maryland State Dental Association, etc. Published by S. S. White. Price, \$3. Fifth Edition. Revised. Cloth, 8vo, pp. 330, with Index. 625 Illustrations.

The author says in his preface that in the present edition of "Artificial Crown and Bridge Work" it has been his aim to supply first of all a practical treatise, which should serve as a text-book for colleges and postgraduate study, and as a reference book for the practitioner. The endeavor, therefore, has been to make it comprehensive in its scope, liberal and impartial in its treatment of the various subjects presented, concise in its statements of the principles involved, clear in its descriptions of methods of practise. That the author has succeeded in doing just what he intended, it only requires a review of the book to prove. It is a strictly up-to-date work. Old methods have been omitted, and new and improved methods inserted. We can commend this work not only to students, but to crown and bridge workers as well. As a laboratory manual it is indispensable.

MARRIAGE NOTICE.

DR. BYRNE A. WILSON and Miss Hallie Lindsay were united in marriage on Tuesday, January 26, 1897, at Piedmont, Mo. Dr. Wilson graduated in dentistry at Vanderbilt University in the class of '96. The HEADLIGHT joins his many friends in wishing the doctor and his bride a long and happy life.

Obituaries.

DR. JAMES A. SWASEY.

THE death of Dr. Swasey, of Chicago, was a sudden and unexpected surprise to his many friends. He was one of the best-known dentists of Chicago, where he has been in practice since 1869. He was born March 12, 1833, and was nearly sixty-four years of age at his death.

The following resolutions were adopted by the Chicago Dental Society:

We are called upon to mourn the death of one whose face will no longer be seen in our midst, Dr. James Atwood Swasey, for many years an active member of this society. This sad event occurred early in the morning of December 24, at his residence, 3017 Michigan Avenue, Chicago. He had been in his usual good health up to about the middle of November, when he first noticed that he was suddenly breaking, and for a few days he went to the West Baden Springs; but not finding the desired relief, he returned to his summer home in Michigan, and from thence came to Chicago, where he died surrounded by his family and friends.

Dr. Swasey was the President of this society when the twenty-fifth anniversary was celebrated, in 1889. He was President of the Odontological Society of Chicago in 1894-95, a member of the Illinois State Dental Society, the American Dental Association, and a member of the first International Dental Congress, Paris, France, 1889. He was also the first President of the Chicago College of Dental Surgery, and was reelected for several years. He was an honorary member of several dental societies, state and local, in the United States.

The society loses one of its best representatives in the death of Dr. Swasey. He was a man of strong character, high-minded and generous, with a pleasing manner, modest in his estimate of his own acquirements, ever ready to counsel and assist others. He was a firm friend, a strong partisan, energetic and industrious, an inventor of many useful appliances, and devoted to his profession to the last. We will miss his familiar face, and hearty grasp of the hand, in all of our subsequent sessions. We mourn with his family in this their hour of affliction, and extend our sympathies.

We place these lines of respect to his memory in our permanent records, with the thought that his life had been useful to the community where he had resided for so many years, and with the ever-present hope and belief in the immortality of his spirit forever and forever.

Be it resolved that a copy of this tribute be sent to his family, and others to the dental journals for publication.

A. W. HARLAN,
TRUMAN W. BROPHY,
F. H. GARDINER,
Committee.

DR. FRANCIS PEABODY, of Louisville, Ky., died at Fort Myers, Fla., January 30, 1897. He had been in failing health for many months, and had gone to the mild climate of Florida in search of health, but failed to find it, as stated above. Dr. Peabody had been a member of the Faculty of the Louisville College of Dentistry for the last nine years, six of which he served as dean. He was well and favorably known in professional circles, being a member of the leading dental associations. The following resolutions were passed by the Louisville College of Dentistry and Hospital College of Medicine:

Whereas Prof. Peabody was the champion of many advances in dental education within the period of his professional career. He always insisted upon the intimate relation of dentistry to the profession of medicine, and maintained that the ethics of the medical profession necessarily included the profession of dentistry. He was an enthusiastic student, an able teacher, and a practitioner of rare skill and ability.

1. *Resolved*, That we deeply deplore his death and feel keenly the loss of his wise counsel and the great loss of his services to this college.
2. That in our judgment the dental profession has suffered the loss of one of its ablest members.
3. That the college buildings be draped in mourning for thirty days, and that the buildings be closed on the day of the funeral.
4. That a committee communicate with the family of the deceased and make suitable preparations for receiving the remains on arrival at the depot and aid in the arrangements for the funeral.
5. That the joint Faculties and students attend the funeral in a body.
6. That we tender to the family of our deceased colleague our profound sympathy and condolence.
7. That a copy of this action be furnished the family of the deceased, and that it be made a part of our permanent records.
8. That a copy be furnished the press for publication.

EDWARD M. KETTIG, THOMAS HUNT STUCKY,
JOHN A. LARRABEE, DUDLEY S. REYNOLDS,
HENRY B. TILESTON, Committee.

WILLIAM NEWTON MORRISON, D.D.S., was born in East Springfield, O., May 25, 1842; and died in Hot Springs, Ark., December 20, 1896.

A special meeting of the St. Louis Dental Society was held on December 22, 1896. President F. F. Fletcher opened the meeting with the following remarks:

Members of the St. Louis Dental Society: It was with heavy hearts that your officers sent notice to meet here in special session to-night. As lightning from a clear sky came the news to us yesterday morning that one of our

oldest, most respected, and esteemed members lay cold in death; a man who but one short week ago sat in his place in the councils of this body and took part in the deliberations, and whom we had every reason to hope and expect would meet with us for years and aid us with his council and advice; a man known and respected wherever dentistry is practised. He was a careful student, a ripe scholar, and an inventor of much ability.

Few men in our profession have been more progressive or lived to see their experimental work in untried fields adopted and approved by all. He was a pioneer in crown work, bridge work, and implantation. They stand to-day his most lasting monument. But he is gone. The last page of his life is before us. My friends, in the death of William N. Morrison the dental world loses one of its pioneer and brightest stars. This society has lost one of its ablest men and most stanch supporters. Every member has lost a friend whose place will not easily be filled. May no uncharitable word be spoken, but as we say peace to his ashes may his memory ever be kept green by the greatness of his achievements!

Appropriate remarks were made by Drs. H. J. McKellops, G. A. Bowman, J. H. Kennerly, and William Conrad.

OUR esteemed friend, Dr. L. G. Noel, has recently sustained a sad loss in the death of his beloved wife. We tender to the Doctor and his family our heartfelt sympathy in their sore affliction.

DENTAL SOCIETY UNION.

THE prospect seems fair to unite the leading organizations at the coming meeting at Old Point Comfort, Va., in August next. If the conference committee can meet and agree on a liberal basis for future meetings at appropriate seasons of the year, there will be no difficulty; but if we are to meet forever and forever the first Tuesday in August, we cannot agree. Why not follow the plan of the American Medical Association, and meet in April, May, June, and July, according to the locality, so that climatic influence will not depress the activity of the members. We are in favor of the amalgamation on a broad basis and the distribution of offices, places of meeting, production of papers, etc., so that every one will have a chance to attend a meeting at least once in two or three years.—*Editorial in Dental Review.*

Associations.

TENNESSEE DENTAL ASSOCIATION.

To the Dentists of Tennessee: Those who are not members of the Tennessee Dental Association, as well as those who are. Our next annual meeting will be held on Lookout Mountain on the first Tuesday, the 6th day of next July, and we are confidently expecting a very large number of dentists to be in attendance. No dentist that claims to be fully up with his profession and duty can afford to miss the meeting. We expect our members from all parts of the state to relate any interesting incidents in their practise, and ask any questions of interest to the profession and exhibit any curios, new appliances, or devices that will in any way be of interest. It will be a time in the year when dentists ought to retire from their regular routine of office work, and spend a few days in social recreation with their fellow dentists. A few hours spent in visiting Chickamauga Park will be of great interest to some who took a part in the celebrated battle. There are also many other places of interest to visit about the city of Chattanooga. Let every dentist be there and be happy himself and try to make every one else happy.

D. P. HOUSTON, *Secretary.*

To DR. J. A. DALE, Editor, Nashville, Tenn.:

Dear Doctor: I wish to make an appeal through the columns of the HEADLIGHT to the dentists of our state, and especially to the young men that have not been in the habit of attending, to come to our state society meeting on Lookout Mountain, beginning July 6. If association stimulates ambition, develops the intellect, and makes one bright and more companionable, let us get together and elevate our professional as well as social side of life. This meeting will have many good features that will be especially interesting to our young men; and if they will come, we will promise to treat them well. The hope of the future is in our young men; and if they can be brought to fully realize the benefits to be derived from attending these meetings, we will have many more of them in attendance. A fews days on historic old Lookout cannot help but be uplifting mentally, as it is physically. Fraternally, U. D. BILLMEYER.

MISSISSIPPI DENTAL ASSOCIATION.

To MESSRS. MORRISON BROTHERS:

Gentlemen: In reply to yours of the 9th inst. will say that the Mississippi Dental Association will convene April 7, and remain in session three days. Owing to the meeting of a called session of the Legislature, the Association will hold its meetings in the City Hall. We have procured reduced rates from all the hotels, and the reduced rate for the round trip of one and one-third from all the railroads. Parties attending will secure a certificate from the agent at starting-point, and buy ticket to Jackson, paying full fare for same, and will get return passage at one-third rate by presenting and having certificate signed by the Secretary at the meeting. We expect quite a large meeting this year, and will have some good papers and clinics from a number of eminent clinicians, as well as representatives from all the leading depots. In fact, we intend to make the meeting so interesting and profitable that no dentist who cares to keep up with the times and be in a position to deal justly with his patients and give them the advantages of the newest and best appliances and methods can afford to miss it. I hope that the above will furnish you the information that you desire. Very truly,

J. P. BROADSTREET.

THE LOUISIANA STATE DENTAL ASSOCIATION.

THE nineteenth annual meeting of the Louisiana State Dental Association convened in Tulane Hall, New Orleans, on Wednesday, March 3, and continued for two days. The President, Dr. J. H. Landry, presided in a very graceful manner over its deliberations. A number of very interesting papers were read, among which was one by Dr. A. J. Foret on "Pulp Mummification," and by Dr. Thomas P. Hindman, of Atlanta, on "The Hygienic Treatment of the Mouth." The election of officers for 1896-97 resulted as follows: Dr. Joseph Bauer, President; Dr. J. J. Sarrazin, First Vice-President; Dr. S. J. Bourgeois, Second Vice-President; Dr. C. V. Vignes, Recording Secretary; Dr. R. L. Zilinka, Corresponding Secretary; Dr. L. D. Archinard, Treasurer. Executive Committee: Drs. J. H. Landry, M. R. Fisher, C. Merrillod, Sr., C. Ratsburg, A. J. Foret, and Wallace Wood, Jr. After some discussion it was decided to hold the next annual meeting of the society in New Orleans February 23, 1898. The newly elected officers were then inducted into their respective offices, every one of them making an appropriate address. Dr. Landry, in retiring from the office of President, grace-

fully thanked the society for the kind assistance it had rendered him in the discharge of his duties. The nineteenth annual convention of the society was then declared adjourned.

NORTH CAROLINA STATE DENTAL SOCIETY.

THE twenty-third annual meeting of the North Carolina State Dental Society will be held at Charlotte, N. C., May 12-14, 1897. An interesting program is being prepared, and a most cordial invitation is extended to all members of the profession in good standing, and especially do we invite those from contiguous states, Virginia, South Carolina, Georgia, and Tennessee. The State Board of Dental Examiners will meet at the same place on Tuesday, the 11th, preceding, for the examination of those desiring license to practice dentistry in this state. For any information in regard to the examination correspond with the Secretary of the Board, Dr. J. F. Griffith, of Salisbury, N. C.

C. W. BANNER, *Secretary.*

THE Mississippi State Board of Dental Examiners holds its annual meeting at Jackson, Miss., on the first Tuesday in April. All applicants desiring permanent license to practise dentistry in this state are required to appear before the Board on the first Tuesday in April for examination.

G. B. CLEMENT, D.D.S., *President;*
L. G. NISBET, D.D.S., *Secretary.*

Jackson, Miss., April 9, 1896.

ALABAMA DENTAL ASSOCIATION.

THE Alabama Dental Association will meet in annual convention in Birmingham April 13th to 16th inclusive. No pains have been or will be spared to make this a memorable event in the history of the Society. All dentists cordially invited. Fraternally,

DR. J. H. CROSSLAND, *Secretary.*

THE Blue-Grass Dental Association at its recent meeting in Richmond elected the following officers: President, Dr. W. W. Justin, of Winchester; Vice-President, D. L. Proctor, of Mt. Sterling; Secretary, W. P. McQuown, of Georgetown; Treasurer, J. W. Stapleton, of Winchester.

ARTIFICIAL TEETH.

TO those dentists who have for many years used and approved the teeth bearing the stamp of H. D. Justi, it might seem unnecessary to further advertise them; but for the information of the great number of young men who are annually entering the ranks of the dental profession, we wish to call attention to a few points in which we claim a superiority for these teeth over all others.

In Form these will excel both in variety and in close imitation of nature, not only in her ordinary average styles, but also in what might be called her eccentricities of the form and arrangement.

In Color we have succeeded in most nearly securing that bony texture which is so distinct from the porcelain glitter we see in so many artificial teeth, and in the delicate blending of the shade they are eminently satisfactory.

In Strength they have the highest degree possible consistent with maintaining the other qualities required. It would be quite possible to make teeth much stronger by disregarding beauty of form, and making a coarse, thick block; but this ought to be, and doubtless would be, at once rejected by both dentist and patient.

In Adaptation to the alveolar ridge, great care has been taken to meet every requirement, and finally we ask for the product of our factory only a careful criticism and fair trial to convince the profession that we are fully justified in the superiority we claim for it.

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No. 3.

JULY-SEPT., 1897.

The Dental Headlight,

A Quarterly Record of Den-
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Interest of the Profession.

• • •

Edited by ——————

JAMES A. DALE, D.D.S.,
AMBROSE MORRISON, M.D.

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NOTICE.—Now is the time to subscribe for the DENTAL HEADLIGHT
for 1897.

MORRISON BROS.

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Communications, original contributions intended for publication in THE HEADLIGHT, and exchanges should be directed to Dr. James A. Dale, 217 North Summer Street; or Dr. Ambrose Morrison, Jackson Building.

All letters relating to business, containing remittances or advertisements, should be sent to the publishers, MORRISON BROS., 307 North Summer Street, Nashville, Tenn.

Neither the editors nor publishers hold themselves responsible for the opinions, theories, or criticisms of the authors of papers appearing in this journal, or any claims of originality or novelty that may be made by them. Papers will not be published under the head of "Original Communications" that have appeared in other journals.

ATTENTION.—We desire to call special attention to our facilities for making Gold Crowns and Bridge Work. See our advertisement in this issue.

MORRISON BROS.

T·H·E

DENTAL HEADLIGHT.

VOL. 18.

NASHVILLE, TENN., JULY, 1897.

No. 3.

Original Communications.

TO WHAT EXTENT ARE WE JUSTIFIED IN GIVING OUR PATIENTS SYSTEMIC TREATMENT? *

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UNDER existing conditions this question is untenable at all, because the law granting the dentist the right to practise his profession does not presume a thorough knowledge of medicine, and hence bestows upon him no right to practise medicine; but, taking the question in the abstract, it involves a broad and extensive knowledge of physiology and pathology. It necessitates a thorough knowledge of osteology and the physiological chemistry of the teeth, and the general processes of nutrition, also the further knowledge of the so-called dyscrasiae, as dyscrasia herpetica, herpetic condition of the blood; dyscrasia malarial or paludal; dyscrasia potatorum of drinkers, alcohol-drinkers; dyscrasia saturnica, lead-poisoning; dyscrasia scrofulosa, serofula; dyscrasia tuberculosa; and dyscrasia uric acid.

It is well-nigh appalling to keep track, month after month, of the far-reaching and damaging influence of even one severe acute attack of indigestion in a child, upon the structural development of its physiological economy, and the so often repeated attacks of this common trouble of childhood make it stand out as one of the most prominent and important causes of the various pathological manifestations due to malnutrition. Remembering that in the rapid development of the child the bones, and teeth especially, abstract or extract from the blood the solid constituents for their formation, an imperfect digestion, of whatever mode or degree, lessens the supply to the system, and unless corrected the fat diminishes at first, as is noticeable by the child becoming more or less ema-

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ciated; then the muscles become soft and flabby, and later and more slowly the teeth show the impress upon the system. Mothers who may be your patrons will often bring their babies to your office in the nurse's arms. Then never fail to show the child attention, not only for the pleasure it may give the mother, who always delights to have her baby caressed and admired, but, without attracting attention to what you are doing, run your fingers or hand over the child's head and note the condition of the fontanels, especially the anterior.

Under the branch of medicine, diseases of children, one of the most common pathological conditions, one which the doctor of medicine is very apt often to overlook, is rachitis. It is astonishing to note the frequency of this pathological condition as existing in the young, and the fact that it is not confined to the poorer and laboring classes, but prevails among the children of some of the wealthiest and seemingly healthiest, should incite us to deeper research and broader study. Again, it is not confined to children of one and two years of age, but children at the age of eight, and even in some instances so late as puberty. The etiology may be either hygienic, in either child or mother; dietetic, most often occurring in hand-fed children, and most frequently in those whose food is of a farinaceous consistency; or chemical, where the dyspeptic fermentations give rise to the formation of lactic acid.

I deem it important just here to show the effect of lactic acid not only on the child after birth, but the results during uterogestation, and for this purpose will cite the case of a woman, who, being forced to inhale lactic acid while feeding this substance to animals, gave birth to a rachitic child, which died soon after birth, and on examination the cranial bones were found to be entirely uncalcified.

Now, by the normal order of ossification, the fontanels should close; the posterior a few months after parturition, and the anterior during the first and second years. Then the fact that progress of closure is retarded or altogether ceased should be an index to us, when accompanied with the diagnostic symptoms of either acute or chronic dyspepsia, that it is due to malnutrition. Then, having decided in our minds what pathological changes are taking place in the development of the osseous structure and the etiology of these changes, let us turn for a few moments and observe what is taking place in the development of the teeth at this time.

We have seen that as early as the beginning of the fifth month of uterogestation there is usually found along the periphery of the

papilla the first traces of peculiar, elongated corpuscles, known as the odontoblasts. Following up their progress to completion, it has been found that in many instances, in which "uncalcified fields" or "interglobular spaces" have occurred, evidently demonstrating the fact that there has been for a time a cessation of calcification, or the dropping of a few stitches in nature. It is evident that the etiology is due to faulty deposition of calcific salts in the development of the dentine during uterogestation, and in all probability this is due to a transient pathological condition of the mother. In the numerous cases of rachitic embryos examined, there has been found many abnormalities in the dentin, jaw-bones, and otherwise various irregularities.

Almost simultaneous with the appearance of the odontoblasts we know that the ameloblasts are forming, and we know that pathological conditions of the mother give rise to defects in the calcification of the enamel, being most frequent after birth, due to the various dyscrasiae.

Then by these data does it not stand to reason that the dentist should treat his patient during uterogestation through the system of its mother either medicinally or hygienically? Having thus observed the physical changes taking place in the calcification of the temporary teeth, let us refer for a short space to that of the permanent teeth. About one year after birth the incisors commence to calcify, and are completed the fourth; following these the cuspids commence about the second year, and are completed the twelfth; and following these in succession the rest of the teeth calcify from the fourth to the eighteenth year. Simultaneous with these periods we find that the child is subject to the various influences as stated above, and during the first year we have seen that the fontanelles should be closing or closed; and if during these periods they remain uncalcified, we are led to believe that it is due to malnutrition, and thus that there is cessation of calcification in the teeth; consequently, if we hope to combat the future pathological conditions that may follow in the dental organs, we must necessarily treat the child systemically; hygienically, giving instructions as to nutrition, healthful amusement, and judicious exercise both of body and mind; and dietetically, by nourishing and properly prepared food, guarding against all excesses.

Dyscrasia Herpetica.—During the period of childhood the system is frequently disturbed by the various cutaneous diseases as rubeola, varicella, and various other pathological conditions having their

etiology in the blood, lowering the vitality and resisting capability. I deem it interesting to cite you a case that came under my own observation.

It was a little girl between five and six years old. Just beneath the infraorbital foramen, and nearer the nasal than the malar aspect, there appeared a large red sore, having a desquamated appearance, and the system generally began to show signs of the impress. Having tried an application of lanolin and chrysophanic acid with the results of aggravation of the local condition, I employed a treatment of arsenic, and in a short time was happy to find the case cured.

We are all thoroughly aware of the fact that if the child is attacked by the diseases varicella and rubeola, during the process of calcification of the teeth, there are varied malformations existing in their teeth, exemplified by pits, fissures, grooves, and various anomalies.

Now the course of these diseases is of short duration generally, but the etiology is in the blood, especially in rubeola, being due to the presence of micrococci, and after subsidence there may be complicated sequelæ, as anemia, pemphigus, and urticaria. Consequently the vitality and nutritive capability of the blood is lowered. Then, again, this is a disease of so common occurrence that a doctor of medicine is not often called in, and the child recovers from these diseases a weak anemic subject, and months afterward comes to your office to have the ravages of decay relieved. I consider the most rational treatment is first prophylactic, removing the cause by building up the blood to its full nutritive capacity by the employment of such remedies as cod-liver oil, and especially sirup of the iodid of iron, still better nutritious food and the wheat phosphates. Then all attempts at combating decay will be successful.

Again, we often have young girls, especially schoolgirls, who may present themselves for our treatment, who either from chlorosis or other causes are pale and anemic. Unless we remedy the anemic condition by a systemic tonic treatment, our dental manipulations will prove unsuccessful. You need not mention to them why you give the systemic treatment; but administer it as though it were a part of your mechanical or surgical manipulations, and you will be happy to see the results.

You see the idea I wish to impress is, that in this herptic condition of the blood its nutritive functions are impaired or lowered,

and we are justified in treating the symptoms as they arise, in order to build up the blood, that the nutrition to the teeth is not lessened. This is most important to us as dentists because the law of caries is, "the non-essentials are sacrificed for the conservation of the essentials;" and thus the teeth are very likely to show the impress upon the system at an early stage, even before the attention of the doctor of medical science is requested.

Dyscrasia Malaria or Paludal.—A patient comes to your office suffering from severe periodontitis or pulpitis; you employ all the skill and local treatment that dental therapeutics teaches, and the patient goes away from your office, only to return with a more severe case. Then do not fail to question in regard to his surroundings and general physical condition, even if the symptoms of malaria have not developed; the fact that he lives in a malarial district should arouse your suspicions, or that he has visited for some time in a section where malaria prevails should lead you to believe that he has malaria in his system, for such is the nature of the bacillus of this disease that it may lie dormant in the system of those who have visited infected localities, and develop in one or all of the forms of malaria when they return to communities exempt from it.

Again, note the character of the pain. With paroxysmal pain of pulp irritation is combined periodicity.

Or more than this, the patient may apply to you for relief of severe odontalgia with neuralgia of the face, and upon examination you find no local cause. But you might have a case of dental exostosis; then to make your differential diagnosis you are forced to rely on the nature and occurrence of the pain. If it is periodical or accompanied by hemicrania, being more severe in the morning and gradually subsiding toward evening, you may be convinced that it is due to malaria, and by a systemic treatment of arsenic and quinine the periodontitis or pulpitis yields to your local dental treatment and the odontalgia and facial neuralgia cease.

Again, the malaria may present itself in enteric difficulties, and, in order to combat the dental difficulty, the system must necessarily be first freed from the cause; for instance, we all know that in severe cases of peridental inflammation we give a laxative or, in severe cases of costiveness, a purgative along with our dental local treatment.

Dyscrasia Potatorum.—It would require too much time to discuss this condition into the far-reaching and broadening effects on the human economy, so I will speak of it in as brief space as possible

to show its relation to dental science and the rationale and extent to which we should treat it.

There are many persons who may drink moderately through a long life, and no marked symptoms of alcoholism show themselves; but the majority sooner or later have the digestive functions impaired, resulting in the loss of appetite, catarrh of the stomach, the bowels constipated, with definite changes in the liver, resulting in a primary degeneration.

It has been formerly thought that gout was mostly confined to the rich, but it is very common among beer, ale, and wine drinkers. Now gout is due to the presence of uric acid, causing a deposition of urate of sodium in the joints. Again, the general trend of discussion on the etiology of pyorrhea alveolaris is to prove that it is from a uric-acid *diathesis*. Then why not begin our systemic treatment as soon as the patient becomes ours to prevent pyorrhea, and not wait till developed before commencing systemic and local treatment?

Dyscrasia Saturnica.—This condition is quite prevalent, particularly in lead-workers and among plumbers, painters, and glaziers. It is not confined to any age, but children are less susceptible than adults, and males less so than females. This toxic metal gains entrance to the system through the lungs, the digestive organs, or the skin. Poisoning may even follow the use of cosmetics containing it.

Now I suppose that it would rarely ever be necessary for the dentist to treat the acute form of lead-poisoning, as that is characterized by acute pains and other symptoms which require immediate attention, and our *confrère*, the doctor of medicine, is consulted. However, the chronic form may come within the bounds of our profession, as it is of long duration during the gradual accumulation of the metal before it reaches the acute form, the poisoning by administration being rare.

The dentist is more apt to discover this condition before the doctor of medicine has his attention requested, because of the following symptoms: (1) anemia, which may be profound, and (2) the most valuable, and one which the dentist is most liable to discover first, the blue line on the gums, the lead having been absorbed into the tissues and converted into the sulfid by the action of sulfureted hydrogen. A good treatment for the anemic condition is iron, and to eliminate the metal from the system give ten grains of iodid of potassium three times a day. Thus, if the treatment is begun as

soon as the blue line is discovered, we prevent the acute forms and relieve the anemic condition, and consequently preserve the vital force requisite to the conservation of the dental organs.

Dyscrasia Scrofulosa.—This is a constitutional condition either hereditary or acquired, and is characterized by inflammatory and hyperplastic changes, occurring mostly in the lymphatic system, skin, mucous membranes, connective tissue, osseous structures, and viscera.

It is claimed that the most influential factor in its pathogenesis is heredity; yet it is the predisposition, and not the disease itself, that is inherited.

Now this hereditary predisposition may lie innate until influenced by some systemic disturbance, as measles, whooping-cough, and typhoid fever; while on the other hand it may be acquired from the product of various evil hygienic influences, as crowding, overwork, especially in the young, and in dark, damp, and crowded apartments. This condition is characterized by the general lymphatic temperamental attributes, together with the subjective attacks of coryza, to scrofulous ophthalmia, to otorrhoea and discharges from behind the ears, to vesicular and pustular eruptions.

Slight wounds of the skin are followed by protracted suppuration, by enlargement of the connecting chain of lymphatics, which heal with difficulty, a point to be remembered by the dentist in his operations.

During the first dentition eruptions appear on the head and face; and if the eruptive diseases strike these strumous subjects, a long chain of ills generally follows. Now seeing these causes and the conditions that follow, with the lowering of vitality, it becomes necessary for the dentist to be able to diagnose the case and recommend the hygienic treatment with administration of the mineral acids and tonics to improve the assimilative functions, the sirup of the lactophosphate of lime for effecting constructive metamorphosis, or the phosphates. The phosphates of wheat may be substituted for the sirup of the lactophosphate of lime.

Commencing such a treatment in time, the dentist may be able to ward off the ravages of decay to a great extent.

Dyscrasia Tuberculosa.—Latest authorities teach that tuberculosis and scrofula are one and the same; to the same extent the dentist should treat systemically.

Dyscrasia Uric Acid.—For quite a long time this so-called dyscrasia has been under discussion in the journals; and it is of such vast

importance, of such broad extent, that a discussion of it would require too much time and space. I will say, however, that it is of vast importance, and when the dentist begins to combat pyorrhea alveolaris he will only succeed through a systemic elimination of uric acid.

Having thus shown, to a very limited extent, the close relationship of the teeth to the rest of the human economy, I will close my remarks with what I deem a comprehensive answer to the question —viz., that just to the extent of the knowledge, study, and research of the dentist into the human system as related to the dental structures, just to that extent is he justifiable in treating his patients systemically; and a thorough knowledge and practise along these lines, combined with dental manipulations, art, and skill, make the dentist who will stand at the head of dental science one who is an honor to his profession, a blessing to humanity, and a useful instrument in the hands of his God.

EDUCATION.*

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In again entering upon a discussion of the subject of education I desire to begin by reiterating, in part, what I said in a former paper before this body at our last meeting upon a point on which I then endeavored to lay a great deal of stress; and that is, that in order for the dentist to accomplish the greatest good and attain to that high plane of proficiency in his profession which dentistry as a healing art entitles him to reach, he must have the hearty cooperation of his constituency. And in order to obtain this co-operation the people must be educated up to the point where they will perceive their frailties and realize their needs, and will appreciate the benefits to be derived from a proper knowledge and judicious care of their masticatory organs.

It is a regrettable, but none the less undeniable, fact that the children of our country are being allowed to grow up in dense ignorance of the great importance of caring for and preserving their teeth; and we very often see the little fellows, before they reach their "teens," with their mouths complete wrecks; and still their deplorable condition soliciting no concern whatever upon the part of their parents so long as they are not annoyed by

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their suffering from toothache. But when at last this inevitable consequence comes and the little one begins to feel the pangs of pain therefrom, they forthwith desire to have the last one of the offenders pulled out, and thus got rid of.

This carelessness and negligence is evidently not because of any lack of solicitude for the welfare of the child or sympathy felt for it; for if it should unfortunately (as is quite likely) be overtaken by any of the diseases caused by indigestion resulting from bad teeth, they would willingly spend the last cent at their command to restore it to health. And so it can only be attributed to their lack of proper education along this line. Such being the case, then why not begin right, and, instead of waiting for the "pound of cure," use the "ounce of prevention."

To do this we must begin with educating the child. We must put into his text-books such information as he should have. We must talk to the parents of the necessity of caring for the child's teeth, and we must impress upon the teachers of our schools at every opportunity the necessity of their teaching the children the great importance of this essential part of their education.

In order to accomplish this I think every State Association should have one or more lecturers whose duty it should be to visit the various schools throughout the State and lecture to them on this subject. This would get both teachers and children interested, and the children would go home and talk about it to their parents and get them interested also, and cause them to awake to the importance of this matter. And so, when once properly set in motion, there is no telling what might not be accomplished by this concerted action.

In looking over my old journals I ran across a very striking statement by an English writer bearing upon this subject, which I quote: "Messrs. R. Denison Pedley and Sidney Spokes, acting on behalf of the British Dental Association, anxious to provide this association with statistics upon which it can take action, asked and received permission to examine the mouths of the 1,000 children at the Central London District Schools at Hanwell, and, at the request of the Board of Management, have furnished the report which is now before us. The number of teeth examined amounted to some 20,000, and the statistics occupied four months in compilation. Of the temporary teeth, 1,119 required stopping and 745 extracting; of the permanent teeth, 1,222 required filling and 271 extracting. There were, therefore, as many as 3,357 un-

sound teeth present in the 903 mouths examined; while over and above this, 83 mouths required the teeth to be regulated by mechanical means. There were only 137 mouths in which the dentition was sound. It has been proved beyond cavil that much pain and suffering is spared those children whose teeth, whether temporary or permanent, are treated and carefully watched during the period of teething and early life."

As I have before stated, in order for the dentist to discharge his duty fully and faithfully, he must have the confidence and hearty cooperation of his community; but in discussing this feature of the question I have proceeded upon the assumption that the dentist was from an educational standpoint perfect—that is, that he was master of his profession in all of its intricacies and details, and was therefore worthy of the confidence of his constituency. But such, I am sorry to be compelled to confess, is not in fact always the case. There are unhappily a large number of drones and impostors in our ranks. And while dentistry as a profession has made rapid strides of progress, and within the last fifty years has risen from almost a position of obscurity to a state of equality with all the other learned professions; yet the battles of victory have been fought out by a comparatively small proportion of its members, those few who have by education and study and application fully equipped and qualified themselves for the undertaking, while the great majority have simply dragged along or followed as stragglers in the van.

This state of things will always exist, of course, to a greater or less degree; but we can and must change the former ratio, and instead of the few fighting the battles and building up the profession, while the multitude follow, reaping whatever of benefit may chance to fall to them, and being a dead weight to be dragged along, we must march in solid phalanx, and each share equally in the work and in the victory which will most surely be ours.

To do this, we must have higher standards of dental education; or, perhaps, I might more properly say, we must discover some method of bringing every would-be dentist up to the high standard necessary to entitle him to the name of dentist.

There seems to be a notion prevalent among some that a dentist can be manufactured in about three years out of any sort of material that comes to hand. This is a very erroneous and baleful idea. A dentist's education, like that of any other successful professional man, should begin as soon as he learns to talk, and continue as long

as life lasts; and unless it does he has not learned all that he should have known. In fact, unless his moral and intellectual training have received the proper attention, and he has had kindled within his breast that divine spark of human kindness which illuminates the human soul and causes him to do unto others as he would be done by, he has not the necessary foundation upon which to build the superstructure of a perfect dental education that will fit him for his profession, and he should therefore be rejected.

Every dentist should be required to know and to conform to our code of ethics. And right here I want to emphasize the importance of the strict observance of this code by all of the members of the profession, and insist upon its receiving that attention and consideration which its importance deserves. This Code is not, as many seem to think, an arbitrary set of rules without any reason for their existence, and which, therefore, any one who thinks proper can violate at will; but it contains the very essence of the principles of our profession. It is the result of what the experience of many years has taught to be essential to the maintenance of professional success and purity and honor, boiled down and sifted and codified for our guidance; and it has become a part of the very foundation-stone upon which our profession rests. And so every applicant for admission into the profession should be impressed with its importance and be required to conform to its teachings.

But there is another feature which I desire to make prominent in this connection, and it is one that I very much admire in the public-school system of our state. This is the system of repeated examinations. We not only require a teacher to be proficient in the branches he proposes to teach and to be of good moral character, but also require him at stated periods to be reexamined in order to test his abilities and see if he is keeping up with the constant advancements being made along educational lines; and if he fails to come up to the requirements, he is disqualified to teach until he shall have by study and application to his work remedied his defects and fitted himself for his position.

Such a system as this, it seems to me, would be an advanced step toward the attainment of that education and progress which is necessary to elevate our whole profession to a high plane of success and usefulness. And such, or a somewhat similar system of periodical examinations, might prove of vast benefit if required of every licensed dentist.

I would like to see a law enacted in all of the states requiring

every dentist not only to strictly observe the code of ethics, but also to take two or more journals and to attend the sessions of at least one association each year. And in case of failure to do so, without sufficient excuse, forfeit his license to practise, unless he shall submit to a reexamination along the line of new and advanced theories and discoveries relating to the profession. In other words, every practising dentist should in some way be required to keep up with the advancements and rapid progress which are being made in our rapidly growing and progressive profession.

There is not a more useful and noble profession than that of dentistry, and this fact should be impressed upon the world at large, and the only way to do this is by the members of the profession uniting in the effort to maintain a high standard of excellence among its members upon which to base its claim to the respect of the world and the confidence of the people; and then, and not until then, will it have reached the acme of its influence and attained the realization of its expectations.

I have, in my humble way, endeavored in this paper to indicate some of the methods by which this may be accomplished.

"RIGGS DISEASE."*

BY HOWARD T. STEWART, D.D.S., GREENVILLE, MISS.

IT is hard to say anything on Riggs disease that has not been said a hundred times before. In all the field of dental literature there is no topic so much discussed, no subject so threadbare. We hear it at every chance meeting with a brother dentist; we have listened to it at every association we ever attended in our lives, and we see in almost every number of every journal that is published somebody's theory as to its cause and somebody's remedy for its cure. So much has been written from which we are able to glean no real knowledge, so much has been said that is only a repetition of what we have listened impatiently to since our earliest recollection; there have been given us the ideas and remedies of so many men who, after stating all they know, end up by virtually admitting, "I do not know its cause, I can not effect its cure"—that it is usually with absolute indifference or ill-disguised impatience that we listen to a paper on this nightmare of the dental profession, and I assure you that it is with grave misgivings

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that I now proceed to add one more to the number of your afflictions. I hope you take punishment good-naturedly. For more than a century the profession has, with a patience that has baffled all description, listened to the opinions of those who have ventured out on this watery waste, and who, after struggling fruitlessly around, have returned to the shore sadder but not wiser men.

Dr. William H. Trueman, in an article in the December number of the *International*, in speaking of Dr. Cravens's latest treatment for pyorrhea, says: "He now recommends a treatment very closely resembling that advocated by Thomas Berdmore, a distinguished dentist of London, in a work he published in 1770 [one hundred and twenty-seven years ago]; so closely, indeed, that we are tempted to ask: Have we in the intervening century and a quarter simply swung round a circle?"

Dr. Trueman, in speaking of extracts quoted from other writers of the same period, says: "How very like the remarks in reported discussions on this subject in this year of grace 1896 are these culled from writers of more than a century ago! writers who are well conversant with and who have accurately described this and other allied disorders of the teeth and gums, that in their day as well as in ours, in spite of their efforts and in spite of our efforts, result in a much-to-be-deplored tooth-loss. With them, as with us, whether these disorders were, wholly or in part, systemic was a much-debated question; indeed, a careful study of the accurate and full records they have left us makes one ponder, and prompts the question: What do we know of these disorders that they did not know?"

In brief, our situation is just this: We have appealed to science in vain for a satisfactory solution of this question, and now, after years of almost incalculable labor, of experiment and investigation, our knowledge of the etiology of this disease, we are forced to admit, is limited indeed, and our treatment largely empirical. However, notwithstanding all this, I would not be understood to say that we are no more successful in our treatment than our forefathers of a century ago; for we have more remedies at our command, and instruments so superior to theirs, that no comparison is to be made. Neither do I mean to convey the idea that the disease is incurable—by *no* means! And on this point I am aware that I disagree with Dr. Clements, than whom there is probably no better-posted man on Riggs disease in this country. Now I shall not take up your time in discussing unsettled theories, but

shall endeavor to give you in as concise a way as possible my own method of dealing with this disease, just as we have to do in every-day practise.

Whatever the cause (whether local or systemic, whether associated with salivary or serumal calculus or with none at all, whether the pockets be deep and easily penetrated or the sensitive gum adheres firmly to the tooth, whether pus be noticeable or not, whether the teeth be loose or firm), the treatment is virtually the same—viz., a thorough breaking up of the diseased tissue and removal of deposits; making a stimulating and solvent application, and protecting the pockets from the ingress of micro-organisms until nature has a chance to establish a healthy condition.

Aside from constitutional considerations, the innumerable modes of procedure constantly advocated nearly all amount to one and the same thing, and one's success depends not so much on the peculiar mode of treatment he adopts as on the thoroughness and skill with which he applies that treatment; and the object of this paper is simply to give a few practical points to aid in applying old treatments. We will now enter more into the details of practical work.

We first obtain the consent and cooperation of the patient, which is by no means always an easy task. Suppose several teeth are seriously affected, calculus is abundantly present, and the gums highly inflamed and bleeding at every touch. Oftentimes this condition is accompanied by a very offensive breath. If it be so in this case, we first lower the window, open the door, and serve the patient a refreshing glass of a pretty healthy solution of permanganate of potash; this for our own self-protection. All visible calculus is then removed, and the patient dismissed for several days, with the following prescription:

R	Acidi tannici.....	5ij
	Acidi carbolici.....	gtt xxx
	Glycerinæ	3j
	Aquæ, q. s.....	3 viij
M. Sig. Mouth-wash three times daily.		

This simply gets things in shape to begin work, which we do in right good earnest at the next sitting. I have no confidence in any except the most heroic treatment, and much care is to be exercised at this first sitting if you ever expect to see your patient again. So the first step is to inject with the hypodermic syringe a small quantity of a one per cent solution of cocaine. The mere external

application of either the water or alcohol solution is totally inefficient for the operation which is to follow. Next we insert a suitable scraper (and I will say here that I find little use for a *scaler* under the gum; I want a *scraper*) to the bottom of the pocket (no further, just at present), and scrape the cementum thoroughly. So far we have scraped only *within the pocket*, in order to avoid bleeding up to this time. Next comes what I consider the most important part of the treatment, and you will observe that just at this point a most essential difference exists between this and the usual modes. A thin, flexible chisel-shaped lancet (this lancet is three-edged, cutting on the point and sides) is now deftly carried toward the apex to a considerable depth beyond the bottom of the pocket; then, still holding lancet firmly against the side of the root carry it all the way around the tooth (if the pocket extends all or nearly all around) thus separating the gum entirely from the tooth. If no discoverable pocket be present, the lancet is just as freely used. The effective use of this instrument usually obviates the difficulty of treating cases where "galleries," as Dr. Cravens calls them, are present. Now this operation, under the influence of the cocaine (or eucain, which I prefer), is absolutely painless, and gives us free access to the root, which we proceed to scrape and chisel heroically all around, especially about the part covered by the pocket. This is not to be merely scraped sufficiently to remove the tartar, but the thickened and congested membrane should be completely torn away, and no harm whatever is done if the cementum itself is removed to a considerable depth; in fact, a speedy and permanent cure is impossible unless this is done.

In addition to this, the overlying gum is to be thoroughly lacerated. You will notice that the inside of the gum over the pockets is less sensitive than the outside—that is, the outer surface is more sensitive to a wound than the inner surface lying against the tooth. This is because of a tough lining tissue which has been thrown up to protect the gum from the pus. Cravens speaks of this surface of the gum as being "glazed"—a very happy word. This is freely lacerated and torn away to induce new granulation and a reunion of the gum with the tooth. During this process the pockets are to be repeatedly and forcibly syringed out with hot water into which a few crystals of permanganate of potash have been dropped, or with hot water alone, as it is the force to throw out debris we are now after, and not medication. For this purpose it is necessary to have smaller and different-shaped points than those that come with

the ordinary syringe. The dental manufacturing companies will make them for you, or you can make them yourself, in this manner: Pull through your draw-plate a small piece of German silver plate, as in making the ordinary joint wire for regulating appliances, until you get the size tube you want for a nozzle. Uniting this along the seam with a tiny bit of silver solder, you have a point you can bend into any shape and cut to any length you want. Next take an ordinary straight point that comes with the brass syringe and cut it off until your point will just slip in. You can also ream out your receiving point with the engine; then unite this with a very small quantity of solder, and you have it. The point should be bent nearly to a right angle, and should be quite long, to enable you to reach to the bottom of any pocket in any position.

Now this surgical work is no easy task, and can not be done in a short time. As a usual thing two teeth are enough to operate on at one sitting, this requiring from one to two hours' time. It is foolish to attempt to operate on half a dozen teeth at one time and do it thoroughly; you can not do it!

This part of the work being completed, a solution of permanganate of potash (twenty grains to the ounce of water) is injected into the pockets with a Dunn syringe. In a few minutes this is followed by a fifty per cent solution of the commercial sulfuric acid introduced on a quill or orange wood.

This strong solution is used for its solvent action on the *cementum* itself, and not to remove tartar. Tartar can not be removed that way; this must have been removed mechanically in the preceding surgical operation. If a Dunn syringe is used to convey the acid into the pockets, a twenty per cent solution is used, being careful to protect the enamel as much as possible from the overflow. Sometimes this is done first and the fifty per cent solution used a few minutes later.

Protecting the pockets from saliva, we now flow over them a protective covering made of the following, which is the formula of Dr. E. C. Kirk:

Shellac.....	3 ix
Benzoin.....	3 iiss
Balsam tolu.....	3 iiss
Carbolic acid.....	3 iij
Oil cinnamon.....	3 iss
Saccharin.....	3 iss
Alcohol, q. s.....	0 ij

Now with the chip-blower or hot-air syringe the alcohol is quick-

ly evaporated, leaving a covering that will protect the pockets for several days. The patient is instructed not to use toothpick or brush, and is dismissed with this prescription:

R Potassii permanganatis.....gr. viij
Aqua.....ʒ viij
Sig. Rinse mouth every two hours.

On the constant use of this wash depends, in a great measure, the success of the treatment, and it is to be continued for several weeks, sometimes months.

In addition to this, the tannic acid wash prescribed in the beginning of the treatment is also to be continued three times daily. This astringent wash is for a twofold purpose: (1) to relieve inflammation and (2) to constringe the loosened gum and hold it tightly against the tooth until reunion takes place.

From the use of the permanganate of potash wash I have had much satisfaction. It is old-fashioned, but it is good. For it, is sometimes substituted hydronaphthol, Listerine, or Pasteurine, all of which are excellent. For injecting the pockets I have abandoned the bichlorid of mercury, as it seems to retard rather than aid the healing process. It is destructive of cell tissue, and its effects seem to be very lasting in this respect within the pockets, leaving the tissues in a sluggish condition.

There is a new preparation called lactate of silver, which, if it is all its advocates claim for it, would be an ideal drug in the treatment of Riggs disease, both for injection of the pockets and for a wash.

But to return. The prescription for the washes completes the treatment. There is no secondary treatment at the chair, the constant use of these washes being all that is now necessary. I mean, of course, for the teeth that have been operated on. No further attention is given to them now for one month, when they are examined; and if any one of them is not doing well, the same treatment is simply repeated on that particular tooth, scraping (or even burring with the engine) away the outside layer of the cementum and again applying the acid and protective covering.

Sometimes the most effective way to tighten a stubbornly loose tooth is to devitalize, remove the nerve, ream out the root canal, and treat it from the inside as well as the outside.

Ream out the root canal freely—little danger of making the walls too thin; we want them thin. Now with a very small drill (made by grinding the shank of a broken Gates-Glidden drill to a chisel

shape) go through the apex. Follow up with the smallest size Gates-Glidden, then the next and the next until you have a free opening through the root and have the tissues bleeding freely. Now syringe out forcibly with your hot water and permanganate, and pump a twenty-five per cent solution of acid through the opening and force it around over the root as much as possible. Often-times you will flood the root and surrounding tissue and force the acid through into the mouth at the gum margin. This last procedure needs some explanation. The operator must exercise his best judgment. If the right course has been pursued, he will take great care in treating; with all hopes lost as to treatment, then the nerve must be removed as a last resort, and absolutely not till then the opening with the drill through the foramen. The lancet before mentioned is to be freely used to aid in this process. You can well understand that this is a most effective and complete way of reaching not only the root and soft tissues, but also the affected portions of the alveolar process itself. So much for the outside; now for the inside: Carry loosely into the canal a strand of cotton saturated with a ten per cent solution of the acid. Seal up with temporary filling and allow it to remain twenty-four hours. Renew every day for several days. You will find the root has become somewhat tough and springy, and is now ready to turn over to Dame Nature. Fill the root, and she will do the rest. Now just what effect this acid within the canal, also without, has I do not know except that it seems to induce a connection between the gum and the tooth and to bind the tooth more firmly in its socket.

If, as Dr. Clements has clearly shown, the canaliculi of these teeth are wholly or partly obstructed by the deposition of lime salts, thus destroying the vital relation between pericementum and cementum, may it not be that this acid has some solvent effect on the lime salts in the partially obstructed canaliculi? And may it not thus penetrate these canaliculi and stimulate to renewed activity the vitality still remaining in the sluggish tissues therein contained? And may it not be that, when the cementum has been entirely removed at some points in the preceding surgical operation, this acid, by its solvent effect in the tubuli of the dentin, may serve to induce some vital connection between the dentin and gum tissue? Certain it is that there is sometimes established a connective tissue that is quite firm in its attachment.

Now all this treatment, you will say, is impractical, that it involves too much time and expense, and that it would be better to

extract the tooth at once; and in most cases, I grant you, this is so, but sometimes it is extremely important to retain some particular tooth in its position, and then no reasonable amount of trouble is too great in order to save it—that is, of course, if your patient is intelligent enough to understand the importance of keeping it in place and is willing to pay you for the time expended. Sometimes when all else fails the tooth is extracted, operated on outside the mouth, and replaced. This is seldom resorted to. When this is done ligatures should not be trusted to hold it in place; a gold band cemented about this and the adjoining tooth is always to be used. These bands are extremely useful adjuncts in the treatment of very loose teeth, and for my part I hardly know how I could get along without them. For lower front teeth they are especially useful. Suppose the incisors and canines are very loose. The first step is to band each tooth with a very thin, narrow piece of pure gold plate, letting it cover only a small portion of the tooth just below the cutting edge. These bands, being of pure gold and quite thin, are easily bent and burnished to the loose teeth. Then an impression is taken with the bands all in place, allowing the impression material to just cover the bands. A plaster and sand model is run and bands joined by a bit of solder between each. This gives you your bands joined in precisely the proper position. Should a tooth be missing, a dummy can be soldered in. This appliance for the present is not to be cemented in, but placed on the teeth between operations and cemented when the surgical work is all done. It is also useful at times during the operation to steady a very loose tooth.

Molars and bicuspids when so loose as to be almost useless in chewing can be made comparatively steady by placing a connecting bar in the grinding surfaces. Suppose the twelve and six year molar and both bicuspids are quite loose, a groove is cut with a corundum disk across the grinding surface of each as nearly in a straight line as possible and a bar bent to accurately fit. This groove must be deep enough to allow the bar to lie well out of the way of the opposing teeth and wide enough to be well surrounded by the alloy which is to hold it in. This is no easy task and is not so simple as it looks, as you will find if you try the operation. Of course this involves quite a loss of tooth structure but this is scarcely to be considered when the teeth are loose enough to need this support.

I am aware that my paper has already reached to too great a

length, but I can not leave this part of the subject without reverting to the first part of the work. The trouble with most men who have had no success in the treatment of this disease is that they have been afraid to cut and scrape, they have not been thorough enough in their surgical work. Too much stress can not be laid on the importance of thoroughly and deeply scraping the roots and lacerating the tissues. There is no possible danger of overdoing it, only one precaution being necessary: Do not scrape such furrows and grooves as to leave sharp angles to irritate the overlying gum. Scrapers should be stiff enough to allow considerable force to be used, and should cut like excavators.

I reiterate what I have before said about this part of the treatment, because with the surgical work that is usually done there is no such thing as cure of Riggs disease. As Dr. Lawrence says: "If your surgical work is not perfectly done, I do not care what your medication is, you may inject till doomsday and you will not get the desired result."

It is natural for you to think that this is all very easy to put down on paper, but the practical work is another thing, and I readily grant you that "I can easier teach twenty what were good to be done than to be one of the twenty to follow my own teaching."

This work is difficult indeed, and the skill requisite for its performance is not easily acquired; it comes only after years of patient cultivation. There is no operation in all dentistry that so taxes the skill and patience of the operator, and none which at times is so discouraging to his efforts. His failures, no matter how skilful he may be, are many and mortifying unless he sacrifices all doubtful teeth to the forceps.

And now, in conclusion, a word about fees. I find that the most satisfactory way is to charge for each tooth separately. This charge should be according to the time that is consumed, and should correspond to the amount one is able to make in the same length of time on other operations in the mouth. In the usual treatment, where from ten to twenty-five teeth are involved, \$50 to \$150 is by no means an exorbitant fee to demand; for if you will count up the time that will be consumed in such treatment, and compare this fee with the amount you usually make in other operations in the same length of time, you will be astonished to find how poorly paid you will be, even though the fee of \$100 seems to most patients so enormous that they hardly stop to get

their hats when it is mentioned. Now I hope to hear this subject of fees discussed. In our enthusiasm for scientific attainments we usually sadly neglect the business side of our practise. Few of us, indeed, are good business men. The hackneyed, stereotyped sentiment that our profession should be followed strictly for professional attainments, and that the question of money should always be a secondary consideration (and, to hear many of our essayists, almost no consideration at all), has been drilled into us from our childhood up until we have become almost ashamed to speak in an association about the science of remuneration; I tell you the science of getting good fees is just as important to the dentist himself as the science of doing good work is important to the patient. And with how much better heart we can *do* good work, and how much more cheerfully we can spend our time trying to learn to do *better* work, if we only have the incentive of better fees *for* better work! The dentist has too long neglected the science of obtaining adequate (but *just*) fees for the intense wear and tear of his nervous system that he is every day called on to endure, and for which he is so poorly repaid, especially when we take into consideration the fact that our average term of usefulness is far shorter than that of men in most vocations, and that it is by no means either the pleasantest of occupations or the most conducive to health and length of life. Those of us who love our profession, in our zeal for scientific attainments and our ambition to excel in skilful operations, often do ourselves the greatest injustice by overtaxing our strength and failing to replenish our pocketbooks; and in nothing that we do is this more true than in our operations for the treatment of Riggs disease. I believe it should be an iron-clad rule with every dentist, before beginning the treatment of this disease, to demand half his fee in advance.

Suppose you begin the treatment without this fee. You cleanse all the teeth, give a prescription, and at two subsequent sittings operate on two or three teeth, expending altogether about four or five hours' time. The operation is disagreeable and very trying on your patient; he goes away, dreads to come back, puts it off from day to day, neglects to use the mouth-wash you prescribed, and the teeth relapse into their former condition. The patient begins by this time to think the treatment is useless anyway, and is unwilling to pay for what had already been done. You will collect this bill, however, lose your patient for all time to come, and he will lose his teeth and think to his dying day that the treatment of

Riggs disease is simply a scheme on the part of the dentist to obtain a fee from the patient. You have done the teeth no good, you have lessened the confidence of the public in the ability of the dental profession, and you have injured your own practise. Had this patient paid fifty dollars in the beginning, the treatment would have been pursued to the end; the teeth would have been saved, your own practise increased, and confidence in the profession strengthened. How different the results! You will say that many people will be offended if you ask a fee in advance; but I say to you that no sensible and honest patient will object when the situation is explained, and those are the patients you want. One of our chief difficulties in dealing with this disease lies in the fact that few, very few, of our patients are educated on the subject; they understand neither the insidious danger of the disease nor the importance of treatment; neither do they realize how much time and work are necessary to effect a cure. When you put a lot of gold into their mouths they are perfectly willing to give you both their time and money, but to treating the mouth for an affection that they experience no special inconvenience from (if the teeth are not loose), and which they may privately think will get along just as well without our treatment as with it, they are usually exasperatingly and stubbornly opposed, especially when the requisite fee is named.

Concerning this disease nearly all our patients are grossly ignorant; but it is our fault that they are so, and were it our daily task to warn them of its dangers and advise its early treatment, the day would not be far distant when they would watch as closely for the first signs of pyorrhea as they now do for caries, and would be no less prompt in seeking professional aid in its treatment. When that day comes, and not till then, the unfolding of a tale of Riggs disease will no longer harrow up our souls, freeze our blood, and cause each particular hair of the fretful dentist to stand on end.

Treat Riggs disease heroically in its incipency, and it is not hard to manage; leave it to the advanced stages, and it will be the nightmare of your waking hours.

PYORRHEA ALVEOLARIS.*

BY GEORGE B. CLEMENT, D.D.S., MACON, MISS.

AT first thought it may seem that the subject of my paper, "Pyorrhea Alveolaris," has had its share of antithesis, but you will agree with me that unless one or the other of even varied opinions be correct, the subject demands further investigation, for nothing short of truth will satiate the appetite of scientific research. Suppose Leon Williams, of London, had ceased his labors and rested the etiology of dental caries on the speculative theory of Black, Miller, and others. Would the question have ever been settled by actual demonstration as it is to-day? So we may make no excuse for presenting a subject, no matter how much has been said or written, provided no man has proved his theory correct by actual demonstration or amenable speculation. Unfortunately there are but few men in every branch of science who can devote time to what we term original work. The result is, the masses have to rely on what they hear, and not what they see.

Now we presume every man honest, but the simple statement of a proposition does not make it a fact. To show you how easy it is to be misled by what at the time was believed to be an honest and correct statement by men of scientific research and ability, we shall only call your attention to one statement which from personal knowledge and actual demonstration we know to be an error. We quote from "Dalton," seventh edition, page 462: "The remaining portion of the trigeminus then enters the dental canal of the inferior maxilla, through which it passes, giving filaments to the teeth," etc. We also call your attention to the diagram of the "fifth pair" by Todd and Bowman, in which filaments are made to spring direct from the dental branch of the inferior maxillary division of the trigeminus. This is all supposition and speculation, for in fact the pulp or dentin organ of each and every tooth simply receives a peridental nerve and blood supply. If it were not so, the restriction of the dental branch of the ramus would destroy the pulp of all teeth anterior. I quote from G. Lenox Curtis, M.D., specialty oral surgery: "I have resected the inferior dental nerve, taking it out from the inferior dental canal throughout its entire length. I have watched with a great deal of interest its effect upon the teeth. I have not found in any case that it made any difference with the teeth. The pulp did not die; there was a numb-

* Read before the Mississippi Dental Association, at Jackson, April 7, 1897.

ness of the lip and cheek, but that did not affect the teeth themselves. If history be correct, over one hundred and fifty years ago pyorrhea alveolaris was recognized as a disease and known as "Fanchard's disease" or "devastation of the teeth." It was deemed incurable in those days, and extraction was the treatment. I am honest when I say I do not believe we have improved on either name or treatment. Since the days of Fanchard (1746) we have followed the teaching and treatment of Bourdet, Magitot, Cruet, Sarran, Witzel, Malassez, Galipe, Oudet, Velpeau, Rigg, Atkinson, Bauchet, Calvi, Cushing, Black, Pierce, Cravens, Harlan, Younger, and last, but not least, Kirk.

We have used the following surgical methods: Extraction, V-shaped incisions, longitudinal incisions, vertical incisions, scraping surface of the roots, removing all calculus, cutting away necrosed alveoli, ligation, curved incision opposite apex through which sanguinary calculus is removed, leeches, setons, and all forms of cautery. The following remedies have been applied in the treatment of this disease: The various zinc salts, liquid ammonia, chromic acid, chlorate of potash, purgatives, iodid of potassium, carbolic acid, alcohol, hydrochloric acid, aromatic sulfuric acid, iodid of zinc, iodoform, aristol caustic potash and carbolic acid in combination, peroxide of hydrogen, pyrozone, perchlorid of iron, bichlorid of mercury, tartar lithene, nitrate of silver, and almost every form of bactericide, antiseptic, and proprietary remedy on the market. Now we call your attention to these facts to show you that the disease has had years of consideration by scientific men, men of ability; and yet with all this theory of cause and treatment, can we to-day take charge of a genuine, specific case and cure it? I claim we can not. As to the etiology of this condition, we find four or five theories which have found favor among the members of the profession and which on first thought seem to have some right of recognition. The germ theory, calculus or foreign-substance theory, hereditary or systemic theory, uric-acid theory. Now we wish to combat each one of these theories, and then we will be pleased to advance ours. In the first place if it were germ origin, it would be at least contagious, if not infectious, and we would find few mouths which would escape its fearful ravages. If it were but the local manifestation of a specific micro-organism, it would yield to germicidal treatment, and recurrence would only be after a secondary infection. If of germ origin, it would reach farther and extraction would but increase the infection because it would open up a new field of action for the in-

vading host. Again, the periodental membrane is not a tissue to invite the invasion of micro-organisms. It is fibrous, tough, and lying as it does beneath the gum tissue, between bony walls, it has a natural protection and armor against all such influence. That germs pass in after the lesion is made and that they are at all times present wherever inflammation occurs we agree, but as a specific cause of this specific disease we say no.

Next, the foreign-substance or calculus theory. We know of but one way in which salivary calculus could possibly excite inflammation, and that is by its presence. As a mechanical factor in the establishment of gingival inflammatory action we agree, but farther than this it has no power. If, then, simply its presence is the agent of destruction, the treatment is removal and the prognosis *sine curâ*. As to sanguinary calculus it could be but the result, instead of the cause of pyorrhea alveolaris, as it is due to and depends upon inflammation as a cause of its formation. Like the pearl, it is but the solidified exudate of a wound. So let the foreign substance do what it will, remove it and the tissues reassert themselves and heal. It has no power to prolong its deleterious influence after it has been removed. We claim that under no circumstances could it produce specific phagedenic pericementitis, and the simple fact that cases are on record where not a vestige of salivary sanguinary calculus were present precludes the possibility of any such agent acting as a fit cause.

Now for the uric acid theory. I must confess that those who hold this tenet have so embellished the doctrine that it becomes beautiful and apparently rational, but when we apply the science of teleology we find various reasons why the theory is incorrect. Out of eleven specimens of Riggs disease examined for uric acid more than one-half failed to show even traces. Now if pyorrhea be specific, the same argument applies here as to the calculus theory; if it be the cause in one case, it must be the cause in all; so if we but stop to think, this one argument is in itself conclusive. But we proceed. Uric acid is never deposited in any tissue where the blood currents are abundant. The periodental membrane and even the alveolar process is freely supplied with blood, and in all such membranes and tissues the accumulation of uric acid is simply an accumulation minute in quantity and wholly incapable of breaking down or even acting as an irritant or poison. In fact, before the mechanical, local, or toxic effects could assert themselves the organism would have succumbed. In ligamentous tissue where the

blood supply is limited or the ultimate terminals of the circulatory system we at times have in gouty subjects an accumulation of uric acid along with the hypercaleic deposits. In the larger glands of the body traces of uric acid have been found, but to say that it collects in sufficient quantities around and about the tooth to specifically destroy the peridental membrane seems to me out of the question. Before we pass let us note the cause or causes of an undue amount of uric acid in the system generally distributed or locally manifested.

It is an established fact that in health we at all times, as a result of physiological chemical activity, have within the organism more or less uric acid, which in health is thrown off through and by the function of the kidneys. Now to become a source of irritation to the organism as a whole or a local disturbance at any special point there must be a want of functional activity in the renal system or some form of perverted nutrition depending upon another cause aside from that of the uric acid. In other words, uric-acid poisoning is secondary and symptomatic of some other first cause. Now Bright's disease and all forms of gout are but symptoms of some first cause, and while in either of these cases we may have as a result a hyper-uric-acid condition, the first from a want of renal activity, the second from a perverted circulatory system. Yet back of these secondary causes we must have some agent acting as a first cause, whose potentiality will disintegrate the albuminous substance of living tissue, for upon this depends the presence of uric acid.* Then if uric acid be the cause of what we term pyorrhea, every case must have as a background some deadly agent, which is slowly yet surely sapping the strength of life and asking but a question of time to complete its deadly work. Extraction cures the disease. Usually even if the system is at the time of extraction slightly anemic, it recuperates, and in the space of a few weeks the patient begins to improve, the gums heal, and no trace of either local or systemic disturbance remains, thus proving that the initial cause of uric acid is not present in each and every case. So we claim that uric acid is not the etiology of pyorrhea. Next we note the hereditary or systemic theory as a cause. It is true that some diseases have symptoms which are registered in the oral cavity. The tongue is quite an indicator of stomach, hepatic, and fever disturbances. The mucous membrane, the saliva, the odor of the breath, frequently point to some special systemic trouble.

* Levison.

In mercurial stomatitis and all glandular disturbances the gums show indications of sympathy. We also agree that systemic troubles, such as gout, syphilis, scrofula, and mineral poisons have a tendency to aggravate a specific case of pyorrhea, but in all such cases save that last mentioned a cure of the disease always relieves the oral symptoms; so we claim that systemic troubles can not and do not produce what we recognize as Riggs disease. Rhein has advocated before the American Dental Association, 1894, an etiological classification of pyorrhea alveolaris, by prefixing an adjective stating the name of the disease which is causing the pathological symptoms in the oral cavity as rheumatic pyorrhea, lead pyorrhea, lithic pyorrhea, diabetic pyorrhea, Bright's-disease pyorrhea, tubercular pyorrhea, typhoid pyorrhea, pyorrhea of pregnancy, anemic pyorrhea, etc. Now, if I understand it correctly, the proposition of Rhein is that by and through the activity of these various troubles some detrimental influence in the way of an agency or pathological result is brought to bear upon the periodental membrane, and thus produce pyorrhea alveolaris. If so, we ask: When the cause is removed why do the pyorrheal symptoms continue? Again, we ask: How is it that pyorrhea frequently occurs where no such systemic disturbances are brought to bear? Who ever heard of a case of old-fashioned Riggs disease ceasing operation on the strength of a convalescence in typhoid fever, or the successful delivery of a ten-pound baby boy? Not much. It is true that all incurable and especially inherited systemic troubles weaken more or less each and every tissue of the human body, but such diseases have no power to propagate or produce another disease altogether different in its nature and decidedly specific. Pyorrhea alveolaris, I claim, is not caused by systemic disturbances, either acute or chronic. If none of these causes produce this disease, what does? To answer this we call your attention to the variety of tissues within the aveolar walls. The dental pulp, the dentin, the cementum, the periodental membrane, the aveolus proper, the mucus covering or gum tissue. Now every one who has undertaken study of this disease takes it for granted that it is a disease of the periodental membrane, per se, and, regardless of all other tissue, begins a series of theorizing as to the etiology of a disease not positively located as to tissue. Out of these six tissues we have no two alike, no two performing the same function, and each and every one subject to a pathological condition. We will notice the cementum, periodental membrane, and alveolus specially, as herein must lie the cause of

pyorrhea. Black says the office of the periodental membrane is threefold: functional, physical, and sensory. It may be, and I presume is, true that this membrane does perform each and every office as laid down by Dr. Black, but we hold that its most important function is in sustaining a vital union between the tooth proper and the organism at large. In its functional office, as referred to by Dr. Black, we find it performs a double duty. It not only forms the osseous structure of the alveolus, but also the cementum of the tooth. Histologists have described three modes of bone formation: subperiosteal; intracartilaginous, intramembranous. The alveolar process will answer to the subperiosteal formation, possessing as it does residual fibers, Haversian canals, and Haversian bone; but as far as I am able to judge the cementum not only differs from bone formation in density, but structure, and does not answer to either mode of bone formation. It is evidently formed by cells which are produced within the fibrous membrane known as the periodental membrane, and in the same manner as bone, yet it assumes a different organization, and the only residual formation of any consequence is the so-called lacunæ, and these are but worn-out cementoblasts forming as they sink into the density of the tissue what in bone we would designate as bone corpuscles. We claim that in some way and by some means the cementum in a physiological condition affords through the periosteum or periodental membrane a vital union with the tooth and organism. As long as this relationship is sustained we have no serious trouble; but if the density of the cementum be carried beyond its physiological condition by hypercalcic deposit or infiltration, the result is exfoliation of the tooth, because by a perverted nutrition we have an interference with those conditions by and through which only is there hope of vital union. This we term *hypercalcic cementosis*, and produce it as in our opinion the cause of pyorrhea alveolaris.

FEES.*

BY F. S. HARRISS, D.D.S., HENDERSON, N. C.

In compliance with the suggestion of our worthy President in his announcement of standing committees that where the subject assigned was not agreeable something else pertaining to dentistry might be contributed, I have prepared a few notes on a topic which has not been much discussed, and yet one of more than passing in-

* Read before the North Carolina State Dental Association, May, 1897.

terest. It is the question of "Fees." And is *not* the proposition that it *is* of more than passing interest justified as I see you all begin to brighten up and rub your hands?

There are several considerations that enter into this question: 1. One must be qualified to exact fees, and must have complied with the laws and statutes regulating these things. 2. A proper conception of how much his time and talent are worth, based on his qualifications, etc., compared with men of good standing. 3. A consideration for the community, whether it is prosperous—live industries, good general prices, appreciative people. 4. As near as possible a uniformity, on the principle of treating all alike; a fair price for each operation performed, with the right to graciously depart from it in any case your judgment may dictate; not for the sake of cutting under or getting the job from another, for we should all disdain to do that, but because you see it would be a gracious or charitable act. Sometimes it is hard to tell where to exercise this discretion, but we can learn it by close observation. Occasionally the recipients of our well-designed charities are most unworthy of it, but an occasional mistake will not hurt us, and the consciousness that we meant well will be a healing salve. We have cases present themselves sometimes that call for delicate treatment —*e. g.*, a lady of fine sensibilities, appreciative of good services, applies and requests cement or amalgam fillings in locations that clearly ought to be filled with gold. You find by adroit inquiry why the cheaper material is selected, and it is owing to slenderness of purse. Here is an opportunity, if carefully handled, of doing a gracious act, filling with gold and making fee as though you had filled with cement or amalgam.

In fees for treating and filling dead teeth it will be better appreciated if items are given—*e. g.*, devitalize nerve, treat, fill roots, fill cavity, etc. Instead of reducing fees where it is desirable to favor one in the bill, take off so much from the bill, and thus your scale of fees and charges will be better maintained.

Always require a part of the price of the set of teeth for which you are preparing the mouth for future restorations to be paid down to cover extractions, etc., in case of removals, death, or running off to another dentist.

If possible, always have uniformity in scale of fees with other dentists practising in the same community whom you may count worthy of regarding as competitors.

Avoid saying: "You won't get it any cheaper from Dr. B. Our

prices are the same," etc. The laity are rather suspicious sometimes, and would not look with favor on what they would consider a trust or combine. Patients' quotations of another dentist's fees are usually unreliable, not always because of dishonesty of patient, but because of ignorance or misconception of services rendered.

I would advise by all means to keep a record of all operations performed, clearly indicated on the diagram; thus you may be able to tell about the permanency of operations, and many times may save yourself money and reputation too. To illustrate: a patient presents with the complaint that one of your fillings is lost, and you remember only that you have operated on the mouth, but not as to what teeth, etc. Now turn to your ledger and refer to diagram, and you can see at once whether the lost filling corresponds with any operation of yours. If all your fillings are intact, you can soon show it to the patient's satisfaction by aid of the hand-glass and mouth-mirror. Never speak of the lost fillings as something that ought never to happen; but rather say, "Well, these things sometimes happen to the best of us; let me see your mouth." The patient pointing out, ascertain in the first place whether a filling has been lost: for I have frequently had them to come with complaint of a filling lost when it was a new cavity suddenly developed (to them) by breaking down of overlying enamel walls. If you are satisfied, however, that a filling has been lost, just bring your record right to the patient and detail to him by comparing diagram with the mouth your various operations; and if the facts exclude this, why you have put it on the other fellow. Some patients are not strictly honest; a filling is lost, you are more convenient or more desirable than the other dentist, and the patient is not certain who did the work, yet, making the wish the father to the thought, seeks to saddle it on you. Having a complete record, you are protected against the blame of any failures except your own. The diagram will be valuable to you at times in ascertaining cause of failures, etc.

It is passing strange what a trifle a little time is with a patient who will aver that it was only a year or eighteen months ago you put the filling in, when by reference to your record you run up with the cold fact that the errant filling was made just seven years ago. Another most unaccountable thing is that the patient never bit anything harder than bread. We ought not always to exact the same amount of fees for the same amount of work—*e. g.*, sometimes an operation requires a good deal of time and yet may be of little

benefit—then charge according to the amount of good you have done or benefit conferred.

When making examinations and giving approximate figures make all very clear on the diagram with a distinction between the amount of work pressing to be done to get the mouth in pretty good order, and what is necessary to set everything in complete order. Many a job goes to the other man because his figures for putting the teeth in order are less than yours, whereas the actual work you contemplate is more. You mark closer, or are more conscientious about running out your fissures, etc. Pray "Lead us not into temptation" when you find two pits with a modest fissure between, and avoid making two separate and distinct cavities to count two fillings, leaving the fissure for future consideration and some future sitting, when you observe "here is another cavity since I filled your teeth, but these fillings I put in are all right."

Sometimes I find it very satisfactory to say: "I can do your teeth a great deal of good for ten or twenty dollars, where possibly some sum has been named by the patient, though I can not do exactly all that is needed." Then a good liberal service, taking into consideration the needs and appreciation of the individual, will be pretty sure to gain you all the work in time. There is a fascination about good fees not alone to the operator, but sometimes to the laity as well. At the same time we must be conscientious, and not be exorbitant or charge good fees to create the impression that we have superior qualifications. Charge good fees and deserve them. Give value received; not that our patients can always see it, or half the time appreciate it, but there will be an inner consciousness impelling us, if we have not stifled her voice, to do just what is right.

A recent writer on "Dental Jurisprudence," in *Items of Interest*, says: "Legally, no limit is placed on fees that a dentist may charge for his services. A practitioner may charge more or less, using his discretion, estimating the value of the service which he renders. The value of the services of all professional men is not alike. An eminent practitioner with an established reputation and long experience can reasonably demand a larger fee for the same service than a less experienced practitioner. The variety of the circumstances—as the nature of the disease, the amount of knowledge and skill required in the treatment, the circumstances under which the services were given, the difficulties and expenses attending them, and the responsibility devolving upon him—regulate the

value of the services of a professional man. I think there is a tendency among dentists to belittle their services, saying to themselves that the fee charged is sufficient, and depriving themselves of the extra remuneration that might be gained if they held a higher estimate of the value of their own work."

In conclusion, brethren, I feel very sensibly that I have not begun to do this matter justice, but have only touched the borders of it; but so far as my knowledge and observation have gone it has been practically ignored in the discussions of our associations and in the literature of our journals, and I thought to set in motion a little wave of interest which, after a while, gathering as it went, might be freighted with benefit to us all.

ORTHODONTIA.*

BY I. N. CARR, D.D.S., DURHAM, N. C.

THE subject which you have assigned to me is one that admits of very few suggestions without the use of models, and hence I will confine myself to one phase of it—to wit, "the surgical correction of irregularities." You all know how very difficult, tedious, and painful the ordinary methods employed for correcting irregularities are, and especially is this the case when the patient is somewhat advanced in years. We of course wish to do our work as expeditiously as possible, and with as little pain and discomfort to our patients as we can avoid. Hence to employ surgical means judiciously and properly will be to the advantage of both our patients and ourselves, provided it can be done without injury of any serious nature to the periodental membrane. That you may see at a glance what I mean, and not to make this a lengthy but, on the contrary, a short, practical paper, with but one thought, to ventilate, and criticize if you will, I will illustrate one or two cases that have been treated by me successfully during the past two years. The idea occurred to me while preparing a mouth for a full denture, some time ago, and in this way: You all know, and I have no doubt practise, cutting and burring away the septum of the alveolar process between each tooth in order that we may assist nature in her work of absorption, and to get the mouth in good condition as soon as possible, for the reception of the plate. I asked myself why this process could not be cut and burred away for the pur-

* Read before the North Carolina State Dental Association, at Charlotte, May 13, 1897.

pose of moving teeth, and determined to try it, and while the cases operated on have been very few, yet the success has been very gratifying. Take, for instance, a cuspid that is either inside or outside the arch, with a septum one-sixteenth or one-eighth of an inch to be absorbed before the tooth can be brought into line. Now, instead of taking two or three months to accomplish your object, it can be done in as many weeks by this method. With your lancet dipped in any antiseptic solution, make a suitable incision in the mucous membrane, and proceed at once, with suitable burs steeped in the same solution, to cut away sufficient of the process to allow the tooth to be easily drawn into place by a suitable appliance. Of course you want to be very careful and do as little injury to the periodental membrane as possible, and particularly not to cut too near the end of the root. Another case in point is where you wish to rotate a front tooth. Make the incision and cut all around three sides, or rather cut two-thirds around the tooth, and not more than two-thirds down the supposed length of the root, put on your appliance, and in an astonishingly short time you will have the tooth where you want it. I do not claim any originality for this method, as perhaps it has been practised by others long before I began it, but it occurred to me in the way above mentioned, and if what I have said will open up the subject for discussion, I have no doubt that we will all be benefited.

THE FUTURE POSSIBILITIES OF DENTISTRY.*

BY CHARLES A. BLAND, D.D.S., CHARLOTTE, N. C.

FIRST, I wish to assure each of you of a hearty welcome to our city, and to express my high appreciation of the honor conferred on me by my appointment as essayist. Realizing that I can hope to present but little that is new, I approach my subject with many misgivings, but I am cheered by the thought that I am before a sympathetic audience. Therefore, relying on your leniency, I ask your consideration of the following paper on "The Future Possibilities of Dentistry."

The early history of dentistry is unknown, but that it was practised in ancient times is an established fact. Fragments of crude bridge work have been discovered which preclude all doubt on this subject. However, for centuries it made no advancement. It was in our own country, through the untiring energy of her

* Read before the North Carolina Association, at Charlotte, May, 1897.

dentists, that dentistry first began to assume tangible form. It was here in our midst that the science of dentistry first gained recognition. The pioneers in the profession had many difficulties to combat, many obstacles to surmount; but, like all labor faithfully and persistently followed, the efforts put forth have not been in vain.

The practise of dentistry was at first limited to the extraction of teeth and the insertion of artificial ones. From this was developed the art of filling. Later on dental appliances began to multiply, until to-day, when the dental office is equipped in a way that places the science of dentistry side by side with other sciences whose advancement has been the wonder of the world.

The work accomplished in the past should nerve us for still greater feats. Activity is a law in the professional life as well as in the natural life. Too often is it true that some, actuated by mere pecuniary motives, lose sight of the scientific side; while others think, on account of its limitations, that the high-water mark has been attained. Hence the tendency to drop into humdrum routine existence is great. There was never any more mistaken idea. Take any department of dentistry, and you will see that it is not circumscribed. Prosthetic dentistry alone presents vast opportunities for a man of versatility. The skilled mechanic finds enough to engross his attention. The artist who delights in the symmetry and beauty of the human face finds scope for his talent in the restoration of the attractiveness of marred and distorted features. Orthodontia, when scientifically practised, promotes the development of esthetics. Those faces which dissembling nature has cheated of their fair proportions are rendered handsome by the skilful correction of irregularities and abnormalities. The ground covered by what is termed operative dentistry is so extensive that not one of us can ever hope to be thoroughly conversant on all of its points. The future possibilities of dentistry depend on the proper conception of education, both practical and theoretical. That manipulative ability is essential to the practise of dental surgery no one can gainsay or deny.

The hands must be systematically trained so they can execute with precision the orders of a trained mind. Seldom do we appreciate the manifold advantages accruing from an understanding of the reasons for this or that mode of procedure. To attempt the performance of dental operations without handicraft is ridiculous; to work without knowledge is to reduce a profession to a mechan-

ical trade. The well-rounded practitioner, besides being versed in mechanism, has studied the causes, and, by his knowledge of systemic conditions and their relation to caries and other disorders of the dental organs, is capable of making an accurate diagnosis, and loses no time in administering the necessary remedial agents. Take the common disease pyorrhea alveolaris, and we frequently find that local treatment will afford only temporary relief. The chemical analysis of tartar shows the presence of uric acid and sodium urates, and demonstrates the necessity of building up the general health. This serves to illustrate the impossibility of making manual dexterity atone for other deficiencies.

One of the futures of our profession is painless dentistry. It may be years before we shall reach this goal, but we stand on the threshold of success. Dr. Horace Wells, a practising dentist of Hartford, Conn., discovered the anesthetic properties of ether, and the world rose to applaud, for science had conquered pain; and, to quote the eloquent words of Dr. Holmes, "the knife of the surgeon is steeped in the waters of forgetfulness, and the deepest furrows in the knotted brow of agony are forever smoothed away." Cataphoresis gives promise of doing for the dentist what ether has for the general surgeon, and before long we can guarantee to our patients immunity from suffering.

In the upbuilding of our profession the State Society plays a conspicuous part. The annual meetings, the exchange of ideas, do much to stimulate enthusiasm. The work of the society in the past has been meritorious, and on its existence depends our future welfare. Sad will be the day when from any cause it shall cease to exist. We young men must endeavor to push faithfully and vigorously the work begun by the elder members. The maintenance of the code of ethics, and the protection of the profession from the evils of quackery, and the laity from the miseries resulting from malpractise, are sufficient to commend the society to the favorable consideration of all well-meaning people. Let us, then, work to enlarge its influence. The task may at times be discouraging and laborious, but we must not, like the lotus-eaters, pass into a dreamy, contented state, forgetful of our duties and unmindful of the glorious victory almost within our grasp. We must advance with unconquerable determination into the mysterious land of science, and by careful investigation bring to light some of its hidden secrets, hereby adding our mite to the world's wealth of learning.

Miscellany.

CONGENITAL TEETH.

BALLANTYNE (*Edinburgh Medical Journal*, May, 1896) delivered a child in 1894, and a few days after birth found that the two lower central incisors were cut. They resembled in their character teeth discolored by the use of iron tonics. Two new central incisors appeared in their place about the seventh month. The mother believed that the earlier pair were absorbed; Ballantyne thinks it more probable that they simply dropped out. The child remains healthy. Buist, in 1893, detected the two lower central incisors already cut in a child born at term. The gum was swollen and the teeth loose. Both came out within a month, and have not been replaced, although the dentition is otherwise normal. Vargas, of Barcelona, in 1895 examined an infant two days old, suffering from tongue-tie and a projection from the lower gum a little to the right of the middle line. It was cut away under cocaine, and proved to be an extra-alveolar dental sac containing an incisor with no root. The literature of the subject is reviewed by Ballantyne. Congenital teeth are usually lower incisors, seldom upper incisors, and very rarely molars. Cases like that reported by Vargas and published by Ballantyne undoubtedly represent ectopia of the dental follicle. The majority simply signify premature development of the teeth. Congenital teeth interfere with sucking and are ill-developed; they should therefore be removed. They have little if any relation to the health of the infant.—*British Medical Journal*.

WOODEN TOOTHPICKS.

THE cheap wooden toothpicks, such as are found on the counters of the hotels and restaurants and are so generally used, are an abomination. They are clumsy, thick at the "points," and, what is worse, they are brittle—so much so that when sharpened sufficiently to force particles of food from between closely planted teeth the points are left between the teeth.

We have had cases present such soreness and swelling that at first glance we thought an abscess was forming, but closer examination proved it to be caused by pieces of toothpick broken off in

the space. The gums have been torn and punctured, and the ragged ends of the wood remaining had caused the serious trouble. We have removed as many as five pieces of pick under these conditions. We have seen two cases where the entire soft tissues had been torn from between the teeth and the alveolus exposed.

A great many persons, both men and women, have the "toothpick habit" of always sticking a pick in a certain space after each meal, even if they have eaten nothing but clear soup. By the time they have practised the habit long enough to consult us about that very sensitive place just above the gums, we find they have crowded the festoon down until the neck of the tooth is exposed, with all the sensitiveness to heat, cold, touch, and proneness to decay that accompany this condition.

Our first treatment is to give the patient a lecture on the use and abuse of the toothpick. Then we thoroughly cleanse and remove all foreign matter, touching the sensitive places with carbolic acid. If a second treatment is necessary, we touch with nitrate of silver. The patient is directed to put a small pledget of cotton in the space before meals, and after eating to brush and rinse the teeth thoroughly and then to remove the cotton and rinse again. As a rule the annoyance ceases and the gum fills the space in a few days' time."—*H. R. Neeper, D.D.S., Hannibal, Mo., in Dental Digest.*

MENTHOL CHLOROFORM FOR COLDS.

WUNSCHÉ (*Therapeutische Monatshefte*) says that menthol dissolved in chloroform is the most efficacious of all remedies. A solution of one or two parts of menthol in twenty parts of chloroform will not only arrest the progress of a cold in its initial state, but it is also an excellent influenza prophylactic.

From four to six drops of the solution should be placed in the hollow of the hand, quickly rubbed between the hands, the two hands tightly pressed together, placed before the face, and the remedy energetically inhaled alternately through the nose and mouth. It will be immediately noticed that the volatile parts of the solution thoroughly impregnate the mucous membranes of the nose, mouth, and throat, and even penetrate deep down in the air-passages. During the first two or three inhalations the sweetish chloroform vapor predominates. After, however, only menthol in attenuated condition is inhaled, odor and feeling remaining apparent for some time after the inhalation. As a rule, the first inhalation suffices to cure the severest tendency to sneezing, and often to

arrest the progress of the cold altogether. Two further applications of the remedy in the course of the day suffice to suppress the attack completely. The first inhalation at first slightly increases the flow from the mucous membrane of the nose; afterward, however, this symptom diminishes quickly. Pains in the pharynx and larynx may be quickly eased and often entirely relieved by the remedy.—*Medical Age.*

SIZE OF A SPIDER'S THREAD.

LEEUWENHOEK, the first microscopist, wrote in 1685 as follows: "I have often compared the size of the thread spun by full-grown spiders with a hair of my beard. I placed the thickest part of the hair before the microscope, and, from the most accurate judgment I could form, more than a hundred such threads placed side by side could not equal the diameter of one such hair. If, then, we suppose such a hair to be of a round form, it follows that ten thousand threads spun by the full-grown spider when taken together will not be equal in substance to a single hair. To this, if we add that four hundred young spiders, at the time when they begin to spin their webs, are not larger than one full-grown one, and that each of these minute spiders possesses the same organs as the larger ones, it follows that the exceeding small threads spun by these little creatures must be still four hundred times slenderer; and, consequently, that four million of these minute spiders' threads can not equal in substance a single hair."—*Microscope.*

DENTAL INSPECTORS FOR SCHOOLS.

THE Ontario Board of Health recently adopted the following resolution: "That dental inspectors be appointed by local boards of school trustees to periodically visit schools and examine children's teeth, and that a dental hospital be started in Toronto for the benefit of poor children; and these recommendations be urged upon the attention of the Minister of Education.—*Medical Mirror.*

Editorial.

COMMENCEMENT EXERCISES, DEPARTMENT OF DENTISTRY, VANDERBILT UNIVERSITY, SESSION OF 1896-97.

RARELY in the history of an educational institution has there assembled a more elegant and appreciative audience than that which greeted the Faculty and students of the Department of Dentistry of Vanderbilt University at the annual Commencement exercises, held on April 1 at the Vendome theater. Never before has there been a larger or more enthusiastic class than that which received the degree of Doctor of Dental Surgery at the hands of Chancellor Kirkland. The stage was appropriately adorned with the choicest flowers, and seated upon the platform were some of Tennessee's most distinguished men. The program was pronounced to be the finest ever rendered in Nashville upon a Commencement occasion. Dr. W. H. Morgan, the venerable Dean, whom every one loves and delights to honor, presided as master of ceremonies. Bishop R. K. Hargrove, D.D., opened the exercises with prayer, after which Mr. L. W. Brand, of Illinois, in a graceful manner delivered the class valedictory. The following is a synopsis of his address. After thanking the citizens of Nashville for the kind treatment and hospitality received by himself and classmates, he said, in part: "Fellow Classmates: We meet to-night for the last time as a class. We have achieved the end of our freshman ambitions, and must say farewell to each other. We have looked forward to the occasion with hope and trepidation. It has come, and the joy of success contests for the mastery with the sorrow of farewell. The degrees which will be conferred upon us will place us within the pale of our profession, and it remains with us alone in the future as to the position we will occupy. In the beginning of our career let us be broad men, and take as models men who have risen to fame by earnest application. We may not win the laurel branch, but somewhere there is a place for each which can be occupied with honor to himself and advantage to society." Addressing the Dean, Mr. Brand expressed the hope that his valuable life might be prolonged for many years to preside over the destiny of the institution which his genius had founded and conducted upon its long and remarkably successful career. He

closed with a few feeling words of regret at the severance of ties so dear to himself and classmates.

The next feature was the magnificent oration by the Rt. Rev. Thomas F. Gailor, Coadjutor Bishop of Tennessee. "It was the masterly effort of the finished scholar," and well calculated to inspire the young gentlemen with the noblest aspirations toward the ideal life of the Christian scientist. Bishop Gailor, after a few well-chosen remarks concerning the auspicious environment of the graduating class, delivered the following charge in brief: "You are on the point of beginning the practise of a noble profession. You are about to enter upon a career which among others means a consecration to service. You stand for truth and ideals, though accepting remuneration for your efforts. The qualities of a man who goes into a great profession and endeavors to reflect credit on it are devotion to truth, courage, and enthusiasm. Truth is above every symbol; it shall endure after we are gone and forgotten, and after the efforts of the architect have crumbled into dust. You are here to-night to consecrate yourself to truth. There will be many temptations in your path, but the reward which will come in the end will be worth every effort." In speaking of courage, he subdivided it into intellectual and moral courage. The first subdivision he announced as an attribute to be despised by no means, but not the highest type. An intellectual coward, Bishop Gailor defined as a man who had no confidence in himself, and takes his convictions from another. A second instance of intellectual cowardice is a reigning fad, the tendency of the present time to cast aside the experience of preceding generations, and appear new, original, and "up to date." The last kind of courage mentioned, "moral courage," he eulogized as the quality which moves men to martyrdom worse than death. To the possessors of it he attributed the wonderful advance of the world from the uncivilized conditions. Bishop Gailor concluded the last qualifications by exhorting the graduates to be enthusiasts in their profession.

The graduates were called upon the stage to receive their diplomas, the degrees being conferred by Chancellor J. H. Kirkland. The class was introduced by the Dean, Dr. W. H. Morgan, who spoke in complimentary terms of their proficiency and gentlemanly conduct during the session just closing. The *personnel* of the class as regards intellectual and manly appearance was the subject of comment by all present, and the "grand old man," Dr. Morgan, viewed them with fatherly pride as he presented them to the Chan-

cellor. The Chancellor spoke in terms of praise of the phenomenal growth of the Department of Dentistry. He stated that the immense building erected especially for this and the Law Department had become too small by reason of the large classes of dental students, and promised to meet the demand for more room by additional stories to the building and improved equipments.

Those who graduated were as follows: D. A. Babcock, Illinois; E. H. Barker, Kentucky; D. W. Beckham, Virginia; H. P. Birdsong, Mississippi; A. A. Brand, Illinois; L. W. Brand, Illinois; E. B. Cade, Tennessee; M. L. Chatham, Tennessee; C. C. Cooke, Texas; Vassar Crenshaw, Alabama; W. L. Dazey, Texas; J. F. Dismukes, Kentucky; H. S. Doolin, Kentucky; H. H. Glover, Georgia; W. H. Golson, Alabama; E. F. Griffin, Mississippi; R. E. Hughes, Louisiana; J. H. Hogan, Illinois; J. C. Howard, Kentucky; W. J. Hunt, Tennessee; E. M. Hunter, Tennessee; R. E. D. Irvin, Alabama; J. N. Keeling, Tennessee; J. O. Merrill, Tennessee; W. H. Moore, Kentucky; W. T. McDaniel, Alabama; J. D. McKenny, Indiana; A. T. McMillan, Arkansas; J. N. Neblett, Tennessee; E. T. Phillips, Kentucky; E. J. Snider, South Carolina; C. H. Tandy, Kentucky; C. S. Taylor, Tennessee; R. E. Ware, North Carolina; C. W. Maguiar, Kentucky; R. H. Perry, Kentucky; J. A. Richards, Louisiana; J. H. Spence, Mississippi; F. I. Tarrant, Alabama; J. C. Walker, South Carolina; D. T. Woodard, Tennessee.

The medals were delivered by Rev. J. O. Rust, who expressed the opinion that the honor-men of a class were, as a rule, the honor-men in life, though the exceptions open the door to the less fortunate.

In the Senior class the medalists were: First honor, Founder's medal, E. J. Snider, South Carolina. Second honor, Morrison Brothers' medal, J. A. Richards, Louisiana. Third honor, honorable mention, W. L. Dazey, Texas. Dr. Henry W. Morgan's medal for best gold fillings, C. W. McGuaiar, Kentucky.

Among those honored in the Middle Class was a young lady, Miss Celia Rich, of Tennessee, who won the Dr. Ambrose Morrison medal in anatomy and physiology. The Dr. J. M. Bass medal, on the same subject, was awarded to F. M. Rose, of Texas; and the Dr. J. A. Dale medal for operative and mechanical dentistry was won by R. B. Saddler, of Arkansas.

In the Junior Class the honors fell as follows: Operative and mechanical dentistry medal, awarded by Dr. J. A. Dale to L. J. Ramage, Alabama. Anatomy and physiology medal, awarded by Dr. J.

M. Bass to E. M. Jolly, Louisiana, Operative technic medal, awarded by Dr. J. A. Dale to L. J. Ramage, Alabama.

The audience was dismissed with a benediction by Bishop Hargrove.

COMMENCEMENT EXERCISES, DENTAL DEPARTMENT, UNIVERSITY OF TENNESSEE.

THE annual Commencement of the Dental Department of the University of Tennessee was held in the Vendome theater, Nashville, on the evening of March 29, in connection with the Medical Department. The theater was beautifully decorated with cut flowers and potted plants, and the Vendome orchestra furnished delightful music for the occasion. Notwithstanding the heavy rain that fell unceasingly without, a brilliant audience graced the occasion, and listened with rapt attention to the distinguished speakers who had come so far to deliver the charge to the graduating classes. Dr. John S. Marshall, of Chicago, addressed the graduating class of the Dental Department, delivering a charge that was most interesting and appropriate, and evincing also much research and professional pride. Dr. Marshall's wide and extended reputation as an author and oral surgeon lent much éclat to the occasion, and we regret that we can not furnish our readers with his entire speech.

The valedictory address by T. B. King, of Tennessee, was a happy affair; short and humorous. The degrees were conferred by Dr. Charles W. Dabney, of Knoxville, President of the University, who in a felicitous speech complimented the Dental Department on its many recent improvements in college building, its equipment for teaching, and the thoroughness of its curriculum. He expressed much satisfaction and pleasure with the Dental Department, which he pronounced a credit to the State University.

Honors were conferred upon the following members of the graduating class: First honor, Faculty medal, was awarded to A. S. Page, of Tennessee; second Faculty medal, to F. S. Williams, of Virginia; third Faculty medal, to J. W. Bryan, of Tennessee. H. S. Page also won the special medal offered by Dr. F. R. Sandusky for excellence in prosthetic dentistry.

TENNESSEE DENTAL ASSOCIATION.

THE Tennessee Dental Association will meet in this city July 6-9. This is the decision of the Executive Committee, who, we

think, have acted wisely in changing to the Centennial City instead of Lookout Mountain, as decided at the Knoxville meeting. This will doubtless meet with the cordial approval of a large majority of the profession, who will gladly avail themselves of the opportunity thus afforded to visit the magnificent Exposition now in progress, to say nothing of the reduced rates offered by the railroads. The meeting will be held in the lecture-hall of the Dental Department of Vanderbilt University, which will afford ample room and is conveniently and centrally located. This will doubtless be the "banner meeting" of this important organization. Many valuable papers will be read—"a feast of reason and a flow of soul" is promised all who may attend. It is now conceded that the Tennessee Centennial surpasses any Exposition (excepting the Columbian) ever held upon this continent; indeed, in some respects, it is pronounced superior to the Chicago Fair, presenting many novel features in a more condensed form, and hence more readily comprehended. On behalf of the publishers of the DENTAL HEADLIGHT we extend a hearty welcome to all members of the profession.

MISSISSIPPI DENTAL ASSOCIATION.

THE Mississippi State Dental Association held its fourth annual meeting at Jackson, April 7-9, and was one of the most interesting meetings ever held by this society. The President, Dr. T. H. Smith, Water Valley, presided. A number of very interesting papers were read, several of which appear in this issue of the HEADLIGHT. Among the clinics given was one by Dr. Frank Holland, of Atlanta, of contour filling in bicuspids and molars. Dr. J. A. Dale, of Nashville, demonstrated a method of making a gold crown. Dr. T. C. West, of Natchez, demonstrated a method of festooning gum on artificial plates.

Dr. P. H. Wright, of Senatobia, was elected President; Dr. H. T. Stewart, of Greenville, Secretary.

Editors Dental Headlight: The meeting of the Tennessee State Dental Association, for July 6-8, has been changed from Lookout Mountain to Nashville, and the 9th to be given in attending the Exposition. All dentists in good repute are cordially invited to meet with us.

U. D. BILLMEYER, Pres.;
B. D. BRABSON, Cor. Sec.

ON April 6 the Birmingham Dental College held their Commencement exercises in the opera-house, when the degree of Doctor of Dental Surgery was conferred on the following graduates: E. C. Coleman, D. F. Florence, H. S. Florence, J. A. Freeman, John Goodwin, J. P. Haley, R. P. McIntyre.

THE excellent address delivered by Dr. John S. Marshall to the dental and medical graduating classes of the University of Tennessee was received too late for this issue, and will appear in the October number of the HEADLIGHT.

DENTAL SPECIAL.

THE Seaboard Air Line will run a special train to the meeting of the Southern Dental Association at Old Point Comfort, Va., leaving Atlanta, Ga., on Monday, August 2, at 12 o'clock noon, arriving at Old Point Comfort the next morning at 8 o'clock. The Seaboard Air Line is positively the shortest and most direct line out of Atlanta, and has been selected as the official route to Old Point Comfort. No change of cars after leaving Atlanta. This will be a great convenience to the dentists in the South who intend attending the Southern Association. For information concerning this trip write to the nearest agent of the Seaboard Air Line, or to E. J. Walker, City Passenger Agent, Atlanta, Ga.

MARRIAGE NOTICES.

DR. WILLIAM JAMES MORRISON, of Nashville, Tenn., to Miss Martha Lytle Rogan, of Gallatin, Tenn., Wednesday morning, June 16, 1897.

DR. JOHN ROSS BEACH, at Clarksville, Tenn., to Miss Harriet Kendrick, on Wednesday evening, June 16, 1897.

DR. IMMER U. BALL, at Port Hickory, La., to Miss Lilly Slaughter, Tuesday evening, April 20, 1897.

DR. J. GLENN GLASS, at Calvert, Tex., to Miss Lucy Randolph Drennan, Wednesday evening, April 28, 1897.

Associations.

TWENTY-THIRD ANNUAL MEETING OF THE NORTH CAROLINA DENTAL SOCIETY.

THIS body, representative of the better element of the profession of the Old North State, met on the 12th of May, 1897, in the capital city of Charlotte. There was a fair attendance, and the meeting was of more than ordinary interest, many valuable papers being read and ably discussed.

Dr. J. E. Wyche, of Greensboro, occupied the presidential chair, and called the meeting to order, prayer being offered by Rev. J. W. Stagg, of Charlotte. The address of welcome on behalf of the citizens was offered by C. W. Tillet, Esq., and was most happy and humorous in style, being eloquently responded to by Dr. I. N. Carr. The customary annual essay was read by Dr. C. A. Bland, of Charlotte, consisting of the past history of dentistry and many valuable predictions and suggestions regarding the possibilities of the future.

Drs. William Crenshaw, of Atlanta, and J. A. Dale, of Nashville, were elected honorary members of the Society. Drs. Frank Holland and H. R. Jewett were present and addressed the Society.

The President's address was an able paper, and was duly referred to the Publication Committee, consisting of Drs. Carr, Rominger, and Matthews.

The new members elected were as follows: R. S. Cole, Rockingham; S. H. Davis, Oxford; J. K. Morse, Lenoir; J. D. Jeter, Morganton; and J. S. Fox, Lincolnton. Drs. C. F. Hawes, S. B. Klutts, and C. D. Livingston were also elected to membership.

The committee appointed at a previous meeting to investigate charges against Dr. H. Snell made their report, fully exonerating the Doctor. Their report was adopted and the committee discharged.

Dr. D. L. James moved that Art. III., Sec. 2, of the Society's Constitution be so amended as to exclude from membership all non-graduates. Unanimously adopted.

Dr. Spurgeon asked the following question, which brought out considerable discussion: "Should dental education include systemic treatment?"

Dr. Crenshaw said that the course as now taught in all reputa-

ble, dental colleges included systemic treatment, and that many cases presented to the dental practitioner required such treatment, and he should be able, in most cases, to give such treatment as was required.

Dr. Jewett said that the time had come for us to enlarge the scope of our work, and that he longed to see the day when we will not send our patients to the physician for treatment, but will be able to follow up our skilled work with such systemic treatment as will always result in complete cure.

Dr. Jones said that until we had taken the M.D. degree we had better leave systemic treatment in the hands of the physician.

Dr. Holland thought no dentist qualified to practise his profession until he was able to discern between diseased conditions in the mouth, and could recommend such treatment as is necessary for the cure of same; that we need more medicine taught in our colleges if we would attain that recognition which our specialty demands.

Dr. C. A. Bland said that we must be able to arrive at the foundation of disease, and that we needed more medicine injected into the course as taught in our dental colleges.

Dr. Hilliard thought the great trouble was that the patient never thought it necessary to pay us for our systemic treatment, and consequently there was little inducement to practise it.

Dr. Rominger endorsed the general sentiment that had been expressed, and thought that we ought at least to be able to refer the patient to an M.D. with such recommendations as would lead him to a speedy and proper diagnosis and course of treatment.

The subject was passed.

The Committee on President's Address and Essay made formal reports, in which they heartily endorsed the recommendations expressed in each, calling especial attention to that part of the address in regard to the care of children's teeth; also commending that part of the essay in which its author makes so strong a plea for a higher standard of dentistry in North Carolina. The reports were adopted.

Dr. Jones asked the question: "With what filling material can we fill most teeth successfully?" This gave rise to animated discussion, participated in by Drs. Holland, C. A. Bland, Everitt, and Osborne.

The following officers were elected: President, H. V. Horton, of Winston; First Vice-President, J. M. Ayer, of Raleigh; Second Vice-

President, E. P. Keerans, of Charlotte; Secretary, C. W. Banner, of Mt. Airy; Treasurer, D. L. James, of Greenville; Essayist, J. S. Hilliard, of Rocky Mount.

Dr. E. L. Hunter tendered his resignation as a member of the Examining Board, which was accepted, and his son, Dr. T. M. Hunter, was elected to succeed him.

Drs. J. W. Hunter and J. F. Griffith also tendered their resignations as members of the Examining Board, which were accepted, and Drs. C. A. Bland and R. H. Jones were elected to fill the vacancies.

Dr. J. H. Crawford, of Raleigh, sent in his resignation as a member of the Society, which was accepted. Also Dr. J. W. Hunter, of Salem, tendered his resignation, which was accepted with deep regret, and upon motion he was duly elected an honorary member for life.

Fayetteville was selected as the next place of meeting, the time being set for the first Tuesday in May, 1898.

Dr. Culbreth reported a case of trouble with cocaine, used hypodermically. He now uses "eucain" for extraction, and has had no unpleasant symptoms following. Dr. R. H. Jones also uses eucain satisfactorily. Dr. H. V. Horton prefers nitrous-oxid gas to the exclusion of local anesthetics; also uses ether in same. Dr. I. N. Carr said that he injects warm distilled water with as good results as with cocaine, and it has the advantage of being entirely free from danger.

Dr. I. N. Carr read a paper entitled "Correction of Irregularities," which was discussed by Drs. Everitt, Ramsay, and Keerans.

Dr. E. P. Keerans read a paper on the subject of "Antiseptics;" discussed by Drs. J. N. Carr, C. A. Bland, W. B. Ramsay, R. H. Jones, and Green.

Dr. J. L. Alexander, Supervisor of Clinics, made the following report:

Dr. L. M. Cowardin, of Richmond, Va., constructed a bridge which gave him an opportunity of showing the method of treating dead teeth with sulfuric acid; also his method of extracting a living nerve without the use of a devitalizing agent. His clinic also demonstrated that it is not necessary to order a special tooth from the manufacturer in making the Mason crown.

Dr. Frank Holland, of Atlanta, Ga., demonstrated the use of the electric mallet in making gold contour fillings. He knuckled up the first and second bicuspids, showing, by the use of the electric

mallet and Perry's separator, that this work can be done beautifully, even where the cavity extends well under the gums.

Dr. H. R. Jewett, of Atlanta, Ga., demonstrated his manipulations of the Hollingsworth systems by making an all-gold crown, the crown made being a second bicuspid.

Dr. J. A. Dale, of Nashville, Tenn., demonstrated a method practised by him for making crowns and bridges, the special feature involved being the absolute correctness with which the work can be done, as it proves itself at every stage of the procedure.

Dr. J. M. Ayer, of Raleigh, exhibited some beautiful specimens of porcelain inlay and jacket work. A careful examination of his models convinces one that his work is of practical value to the dentist.

The officers for the ensuing year were next installed, and the President made the following appointments: Executive Committee: Dr. J. E. Wyche, of Greensboro, Chairman; Dr. D. E. Everitt, of Raleigh; Dr. H. C. Herring, of Concord. Supervisor of Clinics: Dr. E. L. Hunter, of Fayetteville. Publishing Committee: Drs. I. N. Carr, J. L. Alexander, and C. A. Bland.

NOTE.—The foregoing is a synopsis of the minutes of the meeting kindly furnished the HEADLIGHT by C. W. Banner, the Secretary.

THE following is an extract from a circular sent out by the Executive Committee of the American Dental Association:

The next meeting of the American Dental Association will be held at Old Point Comfort, Va., beginning the first Tuesday in August. The American and Southern meet together this year, and we hope to have a very large and successful meeting. Old Point Comfort is a delightful place in which to spend a few days, to say nothing of the benefit that you will derive from attending the meetings. Come yourself, and try to have your society send a large delegation. Railroad and hotel rates (a new hotel has just been completed), as well as any other necessary information, will be furnished later to those desiring same. Hoping that you will give us all the help in your power, I am yours truly,

J. N. CROUSE, *Chairman.*

ARTIFICIAL TEETH.

TO those dentists who have for many years used and approved the teeth bearing the stamp of H. D. Justi, it might seem unnecessary to further advertise them; but for the information of the great number of young men who are annually entering the ranks of the dental profession, we wish to call attention to a few points in which we claim a superiority for these teeth over all others.

In Form these will excel both in variety and in close imitation of nature, not only in her ordinary average styles, but also in what might be called her eccentricities of the form and arrangement.

In Color we have succeeded in most nearly securing that bony texture which is so distinct from the porcelain glitter we see in so many artificial teeth, and in the delicate blending of the shade they are eminently satisfactory.

In Strength they have the highest degree possible consistent with maintaining the other qualities required. It would be quite possible to make teeth much stronger by disregarding beauty of form, and making a coarse, thick block; but this ought to be, and doubtless would be, at once rejected by both dentist and patient.

In Adaptation to the alveolar ridge, great care has been taken to meet every requirement, and finally we ask for the product of our factory only a careful criticism and fair trial to convince the profession that we are fully justified in the superiority we claim for it.

H. D. JUSTI & SON,

PHILADELPHIA,
1301 and 1303 Arch St.

CHICAGO
66 Madison St.

SIX WORLD'S FAIR MEDALS

OF THE

HIGHEST ORDER OF MERIT AWARDED FOR SUPERIORITY

AT

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PHILADELPHIA,

PARIS, SYDNEY,

AND

MELBOURNE,



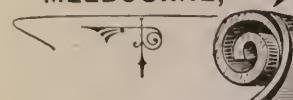
H. D. JUSTI,

IN COMPETITION

WITH THE BEST MAKERS

OF

PORCELAIN TEETH



VIENNA

1873



DE CHILE

1873



CENTENNIAL
1876



SANTIAGO

1873



PHILADELPHIA.



MELBOURNE

1880

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CHICAGO, ILL.

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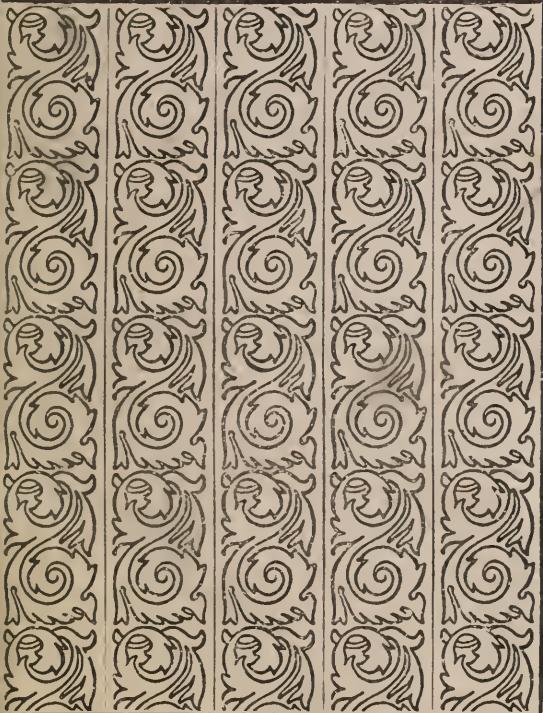


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The Dental Headlight,

A Quarterly Record of Den-
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Interest of the Profession.

• • •

Edited by —

JAMES A. DALE, D.D.S.,
AMBROSE MORRISON, M.D.

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NOTICE.—Now is the time to subscribe for the DENTAL HEADLIGHT
for 1898.

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Communications, original contributions intended for publication in THE HEADLIGHT, and exchanges should be directed to Dr. James A. Dale, 217 North Summer Street; or Dr. Ambrose Morrison, Jackson Building.

All letters relating to business, containing remittances or advertisements, should be sent to the publishers, MORRISON BROS., 307 North Summer Street, Nashville, Tenn.

Neither the editors nor publishers hold themselves responsible for the opinions, theories, or criticisms of the authors of papers appearing in this journal, or any claims of originality or novelty that may be made by them. Papers will not be published under the head of "Original Communications" that have appeared in other journals.

ATTENTION.—We desire to call special attention to our facilities for making Gold Crowns and Bridge Work. See our advertisement in this issue.

MORRISON BROS.

T·H·E

DENTAL HEADLIGHT.

VOL. 18.

NASHVILLE, TENN., OCTOBER, 1897.

No. 4.

Original Communications.

DOCTORATE ADDRESS.*

BY JOHN S. MARSHALL, M.D., D.D.S., CHICAGO.

Mr. President, Gentlemen of the Faculty, Members of the Graduating Class, Ladies and Gentlemen: As I stand in this presence I realize most fully the honor which has been conferred upon me by my friends, the members of the Dental Faculty. I desire also, at this time, to give public expression of my appreciation of the bountiful hospitality of which I have been made the recipient, and of my obligations to these gentlemen and other professional brethren of Nashville, by reason of their many kindnesses to me and mine, in days lang syne. I nevertheless feel as did Mark Antony, that I have not the qualifications for a public speaker :

For I have neither wit, nor words, nor worth,
Action nor utterance, nor the power of speech,
To stir men's blood: I only speak right on;
I tell you that which you yourselves do know.

It is customary upon occasions of this character for the speakers to direct their remarks more particularly to those for whom the occasion was created—namely, the graduating class. I trust, however, that my remarks will not be uninteresting to any of you. It shall be my purpose, in the few minutes allotted to me, to endeavor to stimulate the minds of these gentlemen to renewed effort in study, by a contemplation of the achievements of a few of the grand men who have made possible the wonderful results of modern medicine and surgery—and when I say medicine and surgery I mean to in-

*Delivered before the graduating classes of the Medical and Dental Departments of the University of Tennessee, Nashville, Tenn., March 29, 1897.

clude that great and important specialty designated as dental surgery—men whom the profession and the world delight to honor for their discoveries in science and the blessings which they have brought to the human race. Such a contemplation, I trust, will give birth to an ambition which shall not only aspire to the possession of the highest professional learning and skill, but which shall inspire a desire and a determination to be original investigators.

In Shakespeare's "Henry VIII.," Cardinal Wolsey says to his secretary after his fall:

Cromwell, I charge thee, fling away ambition;
By that sin fell the angels; how can man, then,
The image of his Maker, hope to win by't?

Cardinal Wolsey was ambitious to be Pope of Rome, and bent all his energies to the accomplishment of this purpose, regardless of honesty or moral rectitude in himself or others. This was an ambition of gross selfishness, and it met a merited defeat.

The ambition which I desire to arouse in you is not of this nature. I would stimulate in you a noble, self-sacrificing ambition: one which shall lead you to forget self and all selfish interests; one which shall impel you to search for those hidden mysteries in nature which, when discovered, shall give to the world surer and more efficient means of doing battle against the enemies of life, and thereby bring "length of days" and greater happiness and comfort to mankind. With such sentiments and desires in your hearts, you can say with Dr. Oliver Wendell Holmes:

How blest is he who knows no meaner strife
Than art's long battle with the foes of life!

There is much that is yet to be discovered in the realm of medical science, especially in the fields of embryology, of anatomy, of physiology, of chemistry, of bacteriology, of therapeutics, and of pathology; while there are many mooted questions in theory and practise that are still unsolved. To settle many of these questions will require original investigation and experimental research. These untended portions of the field of science, then, are your opportunities; embrace them, for the possibilities are great. Be not satisfied, however, until you have accomplished something in the line of original discovery which shall help to prevent the inception and spread of disease; to stamp out the dread pestilence, or mitigate in some way the pain and misery of poor, sick, suffering humanity; and though you may not have your names written in history, nor inscribed upon

some lofty monument, you will have the satisfaction of knowing that your name will be revered and honored wherever disease, suffering, and the fear of death are to be found.

Your presence here to-day is evidence that you have been stirred by a lofty ambition to enter the ranks of a most noble and beneficent profession. You have worked your way, in a very literal sense, through the curriculum of study provided by your *alma mater*; you have passed your final examination, and have received the long-coveted parchment stamped with the seal of the university of your choice; you have obtained the commendation of your teachers, and are about to receive the congratulations of your sweethearts and friends. But let me ask: Is your ambition satisfied? Is the striving for knowledge now to cease? Your teachers would tell you that you had only just learned the A B C of the great subjects which they have been teaching you during your course of study, and that the real acquirement of knowledge is yet to begin. You are at the present time like birdlings about to be thrust from the nest; you are to try your professional wings alone and unaided by those who have stood ready to guide every thought of your brain and every effort of your hands during the years of your college life. You are, no doubt, as well equipped for the flight as it is possible to make you in the time that you have spent in the halls of your *alma mater*.

What, then, is to be the direction of your flight? This is the serious question for you to decide, for upon it will depend the success or the failure of your professional life. Will your ambition still carry you up toward the realm of higher professional attainment; or will it gravitate to earth and be satisfied with the commonplace, the sordid, or even worse ambition of the quack and the charlatan?

But wild Ambition loves to slide, not stand,
And Fortune's ice prefers to Virtue's land.

The noblest ambition is that which desires to *know* and to *do*. Knowledge gives power, and power brings opportunity for the accomplishment of great and noble purposes. It gives opportunity for deeds which in our vocation should bring the blessings of health and happiness to mankind; for this should be, and is, the highest aim of every true member of the great profession of medicine.

In your professional work be progressive; do not cast aside a theory or a demonstrated fact because it is new. An unbending conservatism and a blind following of precedent are the arch-enemies of true progress. The history of medicine, from the time of the

Egyptians to the present day, substantiate this assertion. I would therefore advise you, in the words of holy writ, to "prove all things, hold fast that which is good."

The remark, "There is room at the top," made, I think, by Daniel Webster to a young man who was seeking advice in reference to beginning the study of the law, contains so much of stimulation and encouragement to a noble ambition, and withal is so concise and pointed, that it has become almost a classical epigram. I desire, therefore, to impress its teaching upon your minds, for it deserves to be indelibly fixed upon your mental consciousness, and it should be inscribed upon the walls of all of our educational institutions.

This epigram of the great jurist and statesman is as true to-day as when he uttered it, and there is no department of professional endeavor in which its truth is more applicable than in that of the healing art.

The ranks of medicine and surgery in all of their various specialties, including that of dental surgery, are full, and always will be full, of commonplace men; men of fair professional attainments, but lacking in those elements which mark the true man of science. There is, therefore, no crowding upon the upper rungs of the ladder by which you may climb to professional eminence. Let your motto then be "Execlsior," for "there is room at the top."

The earnest student and the man of ability will usually find encouragement and a liberal reward for all his achievements. Neither ability nor ambition, however, without earnest, painstaking and continuous labor, will ever carry you a single step upward. The history of all great men in every line of endeavor proves the truth of this statement.

Do not allow yourselves to be enticed or carried away by

A low ambition and a thirst for praise,

but let your ambition be noble, and seek to satisfy itself in grand achievements and beneficent deeds.

The great anatomist, physiologist, and physician, William Harvey, the discoverer of the circulation of the blood, is a good example of the ambitious, untiring investigator of ability; and one which appeals to every student who has in him the elements of the original investigator and the ambition of achievement to spur him on. Harvey spent many years in his investigation of the great subject of the circulation of the blood, performing innumerable dissections and vivisections upon the lower animals—studying the

mechanism of the heart, the structure of the arteries and veins, and in noting the movements of the heart and the flow of the blood in the arteries and veins of living animals—before he imparted his knowledge to his students and friends; but he withheld its publication to the world for nine years longer, that he might verify each and every feature of his new and astounding theory.

His discovery was complete in every detail save one: that of the capillary system of blood-vessels. The demonstration of these vessels was an impossibility without the aid of the compound microscope, and this instrument was not sufficiently perfected to be of value until some time after his death. The marvel is that he discovered so much of the minute anatomy of the blood-vessels with such poor means for investigation, for the only aid to the eye that was in his reach was the ordinary lens or magnifying-glass.

The great discovery of the complete circulation of the blood forever did away with the old and absurd notion that the "arteries were air-tubes carrying a subtle kind of air or spirit," and that the veins alone carried blood to the various members of the body. The fact that the heart was the propelling power which forced the blood through the arteries, and that the pulsations in the arteries were the result of the rhythmic contractions of the muscular walls of the heart, had never before been demonstrated or even suggested. Many other interesting facts which time will not permit to be mentioned were discovered by this great man.

Harvey had the supreme satisfaction—a satisfaction not always accorded to the discoverer—of seeing his theory adopted by nearly all of the great anatomists of his day, while no name stands higher in the annals of history than that of William Harvey.

John Hunter, the noted anatomist and surgeon, was perhaps the most industrious laborer in the field of original investigation in the whole annals of medicine; and although driven by a constantly increasing practise, he yet found time for numerous lines of original study and research. These investigations covered a wide range of subjects, including comparative and human anatomy, physiology, pathology, natural history, and surgery. His specimens accumulated so rapidly that he finally built a museum, the upper story of which was devoted to his collection. "Some idea may be formed of Hunter's extreme diligence by the fact that his museum contained at the time of his death 10,563 specimens and preparations," many of them of the greatest interest and value.

Among the most notable of Hunter's surgical studies was that

of the treatment of aneurism by the famous operation which bears his name. This operation consisted of tying the artery at some distance from the aneurism but at a point nearer the heart, thus introducing a practise which has been fruitful of most important results in surgery. He is best known, however, to Dental Surgeons by his great "Treatise on the Natural History of the Human Teeth," published in two parts, the first in 1771 and the second in 1778; and as introducing the operation of transplanting teeth from the jaws of one individual to those of another.

Several specimens of his experimental studies in this operation are still to be seen in his collection, which is now owned by the Royal College of Surgeons, London. These specimens consist of teeth which had been successfully transplanted to the comb of the cock. The anatomical specimens cover almost the entire field of comparative and human anatomy and pathology, the department devoted to the anatomy of the teeth and their pathology being very complete.

Among the other notable writings of Hunter may be mentioned his "Treatise on Venereal Diseases," "Observations on Certain Parts of the Animal Economy," and a "Treatise on the Blood, Inflammation, and Gunshot Wounds."

Hunter, like many other great men, was not fully appreciated until after his death. "His contemporaries looked upon him as little better than an innovator and an enthusiast, but he was universally acknowledged by the younger surgeons of his day as the head of his profession."

Edward Jenner, the discoverer of vaccination, is another illustration of the fact that all great men have achieved their greatness by earnest, patient, continuous labor.

Jenner's first thoughts upon the great question of controlling the ravages of smallpox by vaccination with kinepox came to him while a student of surgery and pharmacy in a small provincial English town, before he had reached his majority, in a remark made by a milkmaid who had called to seek his advice. The subject of smallpox being mentioned in her presence, she observed: "I can not take the disease, for I have had cowpox." This occurred before the year 1770, but from this time onward until the year 1798, when he published his first memoir upon the subject, it became the great and all-absorbing theme of his life.

He began his investigations of the subject by first examining the proofs of the general impression prevailing among the class to

which the maid belonged, of the immunity from smallpox of those who had received accidental inoculation with cowpox.

He next studied kinepox as found among the cows of the neighboring dairies, and came to the conclusion that the disease had its origin in an affection of horses known as *grease*, a pustular disease affecting the heels of these animals.

The next step in his investigations was a study of the disease as found in persons who were accustomed to milk the infected cows, and he discovered a peculiar form of the disease which seemed to give immunity against smallpox. The investigations upon this particular feature of the subject occupied no less than sixteen years, the crowning experiment being made upon a boy, James Phipps, on May 14, 1796. Many similar experiments followed the success in this case; and in 1798, twenty-eight years after he began his first investigations, he announced to the world his great discovery. Through it the death-rate from smallpox has been reduced in England, where vaccination has for many years been made compulsory, from 21.2 per cent to 0.67 per cent.

The value of this discovery is recognized all over the civilized world; and for almost a century it has been the means every year of saving thousands upon thousands of human lives, and has brought one of the most disgusting, horrible, and fatal pestilential diseases known to the human race entirely within the control of the physician.

All honor, then, to Edward Jenner for a discovery which in its greatness and far-reaching benefits to mankind has never been excelled in the history of the world.

Coming down to more modern times, the names of Horace Wells, William T. G. Morton, and Sir J. Y. Simpson stand out as notable landmarks in the history of medicine: Wells, for his discovery of the anesthetic properties of nitrous oxid or laughing gas; Morton, for his discovery and successful demonstrations of like properties possessed by sulfuric ether; and Simpson, for a similar discovery and successful demonstration of the anesthetic properties of chloroform.

Anesthesia is without doubt one of the greatest of all the discoveries that have been made in the history of medicine. Only the medical men of to-day whose locks have been whitened by the snows of many winters and whose practise has extended over more than half a century of years can fully appreciate how great a boon this wonderful discovery has been to suffering humanity.

They alone are able to contrast the surgery of to-day, and the painless, unconscious condition produced by anesthesia, with the horrors which surrounded the poor unfortunate sufferer upon the operating-table in the days when anesthetics were unknown.

Wells's discovery, as you all know, was the result of accident, he having noticed that a subject who had taken laughing gas for the amusement of an audience was unconscious of an injury received during the seance. Morton, being associated with Wells, knew of this discovery; but, doubtless seeing from the action of the gas that it would not be a reliable means of producing a *prolonged* unconsciousness to pain, was led to experiment with sulfuric ether, with the hope of finding something better suited for this purpose. His experiment resulted in the discovery that sulfuric ether was the safer and more reliable anesthetic for prolonged surgical operations.

But this is not the time nor the place to enter into a discussion of the claims of the disputants for the honor of the first discovery of anesthesia. It may, however, be safe to say that to Wells belongs the honor of producing anesthesia for the first minor surgical operation with nitrous oxid gas, and to Morton for producing anesthesia for the first capital operation with sulfuric ether. In either event to dental surgery belongs the honor of discovering this great boon to mankind, for both of these men were dentists. One year later (1847) Simpson discovered the anesthetic properties of chloroform, and introduced it into his obstetrical practise. Since this time chloroform has been the favorite anesthetic in Europe, but in America sulfuric ether has always received the preference. Nitrous oxid gas, though still largely used for minor operations like the extraction of teeth, has been generally discarded for all operations requiring any considerable amount of time for their performance.

This trinity of names, Wells, Morton, Simpson, stand out as the triple monument which marks the beginning of the great advancement which has been made by modern surgery. To this trinity the world owes its everlasting gratitude not only for the beneficent gift of producing unconsciousness to pain, but by making it possible to save innumerable human lives by surgical operations which without the beneficent influence of an anesthetic it would be barbarous or fatal to attempt.

Perhaps the most notable figure in the history of modern medicine and the allied sciences is that of Louis Pasteur. Though Pas-

teur was not a physician nor a surgeon, many of his labors have had a direct and very important bearing upon the science of medicine, and his name has become known in almost every intelligent household by reason of his many and important scientific discoveries; discoveries affecting the health, the lives, and many of the great industries of the people.

Pasteur, early in his educational training, evinced a passion for chemistry. It is therefore not surprising that his first investigations should have been in the field of this much loved science. Later, he became greatly interested in molecular physics and crystallography. These studies prepared him to grapple with a subject then agitating the minds of certain great scientists in reference to the polarization of the tartrates and paratartrates of ammonia and soda, Mitscherlich, the great German chemist, having affirmed that they possessed "the same atoms, the same internal arrangement of atoms, and the same outward crystalline form, one of them, nevertheless, causing the plane of polarization to rotate, while the others did not."

Pasteur immediately "instituted a search for facets" upon the crystals, "like those discovered in rock crystal, and which, without altering chemical constitution, destroyed the crystalline identity." His search was soon rewarded by the discovery of such facets—namely, right-handed and left-handed—upon the tartaric acid crystals, and later "proved the neutrality of the paratartrates to be due to the equal admixture of right-handed and left-handed crystals, one of which, when the paratartrate was dissolved, exactly neutralized the other." The honor of discovering this left-handed tartrate belongs alone to Pasteur, and Biot once said to Pasteur on introducing him to Mitscherlich, just after the discovery referred to: "My young friend, you may boast of having done something great in having discovered what had escaped such a man as this."

Pasteur's attention, however, was soon drawn from the study of the abstract in science to the more vital issues comprehended in the yet undeveloped science of bacteriology. In this department of scientific study he is best known to the medical world, and in it he has accomplished more, perhaps, than any one man in this field of investigation.

Prof. John Tyndall, writing of Pasteur in 1884, said: "In the investigation of microscopic organisms—the 'infinitely little,' as Ponchet loved to call them—and their doings in this our world, M. Pasteur has found his true vocation. In this broad field it has been his

good fortune to alight upon a crowd of connected problems of the highest public and scientific interest, ripe for solution and requiring for their successful treatment the precise culture and capacities which he has brought to bear upon them . . . and in which his labors have rendered him one of the most conspicuous scientific figures of this age."

Fermentation was the first subject in this line of investigation which attracted the attention of Pasteur, and after many years of study and experimental research resulted in the discovery that all classes of ferments were "*living things*," and that the substances which had been formerly regarded as ferments were in reality only the food of the ferments.

He also discovered that some of these organisms required free oxygen to maintain life; while another group were capable of living without free oxygen, but had the power of liberating this element from its combination with other elements and appropriating it to their use.

The first group he termed *aerobies* and the latter *anaerobies*, and classed all microscopic organisms under these two heads.

Among his other discoveries in fermentation was the *bacterium lactis*, the organism of lactic fermentation; the *mycoderma aceti*, the organism of acetic fermentation; and the *vibrio* of butyric fermentation.

Through the investigations and experiments of Pasteur, the theory of "spontaneous generation" was proved to have been based upon false premises, and received its death-blow. He stated his convictions in the following words: "There is not one circumstance known at the present day which justifies the assertion that microscopic organisms come into the world without germs or without parents like themselves. Those who maintain the contrary have been the dupes of illusions and of ill-conducted experiments tainted with errors which they know not how either to perceive or to avoid. Spontaneous generation is a chimera."

Another series of studies equally important from an industrial standpoint was that of the diseases of wine and beer. These investigations resulted in important discoveries as to their causes and the means by which they might be cured. The cure consisted of racking, bottling, and the employment of heat from 55 degrees to 60 degrees C. This discovery wrought invaluable benefits to very important and wealthy industries.

In 1849 an epidemic disease broke out in the silk-worm nurseries

of the South of France, which threatened to destroy one of the most valuable industries of that country. The disease extended during the next seventeen years to all the silk-growing countries of Europe and to the far east, Japan alone escaping. In 1865 Pasteur was induced by the Senate of France to undertake a study into the cause of the disease and to suggest if possible, some remedy, as the great losses to this branch of industry occurring year after year were becoming a national calamity.

After five seasons of incessant study and experiment, in which he was assisted by his wife and daughter and a corps of assistants—but which so taxed his energies that he nearly lost his life—he succeeded not only in discovering the nature and cause of the plague, but the means by which to successfully combat it. For the success of this great work, which has restored to France and other silk-growing countries one of the most fruitful sources of their wealth, his emperor nominated him a senator.

Pasteur's investigations into the nature of virulent diseases was the most important of all his work, and brought him into closer relations with the medical world than any of his previous studies.

His discovery of living ferments had suggested the possibility of discovering the causes of virulent and contagious diseases. He was so impressed with the possibilities of such a discovery that at the close of his labors upon the diseases of wine and beer he wrote, with the conviction of scientific certainty: "The etiology of contagious diseases is on the eve of having unexpected light thrown upon it."

His first investigations in this field were directed to a study of the dangerous ammoniacal fermentation which takes place in so many affections of the bladder, with the discovery that it was invariably caused by the presence of a microscopic fungus. He next set to work to find a remedy which would combat this fermentation, and discovered that boric acid was antagonistic to ammoniacal fermentation; and therefore recommended to Dr. Guyon, of Paris, the injection of a solution of boric acid into the bladder to control the fermentation and to prevent its development after operations.

This discovery, coupled with the equally important discovery of the causes of fermentation, laid the foundation for the development of that great and comprehensive system of treatment known as antiseptics. Lister, seizing upon these facts and others growing out of Pasteur's studies in fermentation, began in Edinburgh in 1865 a series of most brilliant triumphs in surgery, by the application of

his antiseptic methods. These methods have since been adopted by enlightened surgeons all over the civilized world; and it has become, by its wide range of application, one of the greatest blessings ever bestowed upon suffering humanity, and has made possible the saving of thousands of lives every year which would otherwise have been sacrificed.

This great English surgeon, writing to Pasteur in 1874, said: "It gives me pleasure to think that you will read with some interest what I have written about an organism which you were the first to study in your memoir on laetic fermentation. I do not know whether you read the *British Medical Journal*; if so, you will from time to time have seen accounts of the antiseptic system which for the last nine years I have been trying to bring to perfection. Allow me to take this opportunity of sending you my most cordial thanks for having by your brilliant researches demonstrated to me the truth of the germ theory of putrefaction, thus giving me the only principle which could lead to a happy end, the antiseptic system."

Pasteur's labors did not end here, however, for he had become so impressed with the possibilities of the study of viruses that he determined to penetrate into the causes of that dreadful cattle plague known as splenic fever or anthrax, which for years had decimated the flocks of France and other countries, resulting in a financial loss of millions of dollars annually.

This subject has been under investigation for years by such men as Davaine and Rayer, Jaillard and Leplat, Koch and Paul Bert, without any definite result so far as a positive demonstration of the real cause was concerned, or the discovery of a rational cure.

Pasteur was able to prove, after a series of experiments, that the threadlike bodies—anthrax bacilli, discovered by Davaine and Rayer in 1850, but which they did not associate with the disease as a causative factor—were the real and only cause of the disease; and later he was able to prove that the disease was curable by inoculation. During Pasteur's investigations upon this subject he also discovered the bacillus of septemia, which has been the means of misleading the other investigators who had been searching for the causes of splenic fever.

Perhaps the most important of all his discoveries was made while studying chicken cholera. He found that in making artificial cultures of the organism of this disease, after a pure culture had been obtained, its virulence after a certain period decreased with its age, so that fowls inoculated with a pure culture which was, for in-

stance, three months old were not killed by it as they would be if inoculated with a culture only twenty-four or forty-eight hours old, but were only rendered more or less ill. If, after they had recovered from this inoculation with the old culture or attenuated virus, they should be inoculated with a pure culture one or two days old—a virulent virus—"capable of killing its one hundred per cent" these fowls would be made ill, but would eventually recover. Pasteur's conclusion was this: "The disease can protect from itself," or, in other words, one attack would render the fowl immune to a second attack.

Another important discovery growing out of Pasteur's studies in the attenuated viruses was the fact that hydrophobia in animals and in man might be prevented by rendering them immune to the infection by inoculation with a specially prepared virus; and that the disease itself could be prevented from developing in those who had been infected by the virulent virus if inoculation with the attenuated virus could be instituted immediately after the animal or person had been bitten by a rabid animal.

Upon this discovery of the attenuated virus, and the accumulated evidence of a century, upon the value of Jenner's discovery of vaccination with kinepox, coupled with the success attending inoculation against splenic fever, the marvelous results of antiseptics in surgery, and of inoculation in hydrophobia with the attenuated virus, has been built the hopes of Pasteur and that rapidly growing body of earnest delvers after knowledge, in the fields of bacteriology and therapeutics; and the day is not far distant when all infectious and contagious diseases shall be brought under control by like measures, and eventually stamped out of existence.

These hopes are already being realized in tetanus and diphtheria, by the antitoxin treatment. The mortality in tetanus, which was originally about 88 per cent, has been reduced to 20 per cent, while in diphtheria there has been, according to some authorities, an equally great reduction in the death-rate.

Prof. Tyndall, writing to Pasteur in 1876, said: "For the first time in the history of science we are able to entertain the sure and certain hope that in relation to epidemic diseases, medicine will soon be delivered from empiricism, and placed upon a real scientific basis. When this great day shall come, humanity will recognize that it is to you the greatest part of its gratitude is due." All honor, then, to Louis Pasteur for his great scientific discoveries and for the invaluable benefits which they have brought to mankind.

The contemplation of the achievements of such men as these—men who sacrificed personal enjoyment and were willing to sacrifice even life itself that they might bring health, comfort, and prosperity to their fellow beings—should not only command our respect and veneration, but should stir within those of us who are also colaborers in the field of science a supreme ambition to emulate their deeds.

Yet all may win the triumphs these have won.

These men, and that great army of others who have labored in the fields of science for the discovery of the laws which govern the organic and inorganic world and their application to the physical needs of the human race in health and disease, often conducted their studies under circumstances of great personal discouragement, and were many times obliged to surmount difficulties, which to less enthusiastic laborers seemed well-nigh insurmountable; and yet by earnest, constant, and intelligent effort, their labors have been crowned with success; or, failing in this, they have been able, through their experience, to point the way to success to those who have followed them.

Do not imagine, however, that because so many brilliant discoveries have been made in the past that there are now no opportunities left for achieving greatness in the field of science, for such is not the fact. The field is large and the opportunities many, to those who are willing to delve. Never in the history of the world has there been such activity in the fields of original study and research; never has there been so many well-trained minds brought to bear upon the numerous unsolved problems in medical science; never have the prospects been so great for their correct solution as they are to-day.

All honor, then, to those grand men of the past, who, working against great odds, achieved so much, and have made it possible for those who come after them to discover what was hidden from their eyes. All honor to those who are at the present day delving into the hidden mysteries of the unknown in science; mysteries which shall eventually be solved, thus making the names of these laborers worthy to be written upon the same page in history with those of Harvey, Hunter, and Jenner, Wells, Morton, and Simpson, Pasteur and Lister.

PRESIDENT'S ADDRESS.*

BY U. D. BILLMEYER, D.D.S., CHATTANOOGA, TENN.

Gentlemen of the Tennessee Dental Association: In casting about for some tenable subject upon which to address you on this occasion, it occurs to me that I would not avail myself of the best opportunity afforded me if I did not speak of the tone and dignity of our profession, and the important relation we sustain to the community in which we live. The present position of the profession has grown from that of the barber, the blood-letter, and the tooth-puller to that of the promoter of the prosperity and general welfare, as well as the health and happiness of civilized society.

When we turn over the pages of history of the dental profession for the past fifty years we are led to the conclusion that the self-sacrificing efforts of a very few earnest men, whose names are familiar to all, must be given the credit for the high position we have attained as a profession. Their time, money, experiences, successes, and, I dare say, failures were freely given. New instruments and appliances were exhibited. They told of their various methods of operating and treatment, formed societies, wrote papers, and encouraged others to become identified with the work. Dental colleges followed, and to the good work done by these agencies is due the high position dentistry has reached to-day in the estimation of the civilized world.

Not many years ago we, as dentists, received recognition as specialists by having dentistry created as a section of the American Medical Association and of the International Medical Congress. All other specialists in medicine are physicians by education, and have the same degree as the general practitioner of medicine. We are also as truly specialists, because medical science could not be so partial and constricted as to ignore some of the organs and functions of the human system, especially those that are so essential to health, beauty, and comfort as are the dental organs.

However, we are dentists, recognized as members of the dental profession; we have made a distinct name for ourselves; let us make it a name that will be so honored and respected that we can say with pride at all times: "We are dentists." We should stand upon our own foundation, and it should be our ambition and pride to make the name dentist as noble as the name physician has become by cen-

*Delivered before the Association July 8, 1897.

turies of honest work. If we would be honored and respected in the community in which we live, we should conduct ourselves as high-toned, well-bred, cultured professional gentlemen. A good honest dentist is a great blessing to any community, and the conservative, thoughtful people will appreciate him at his worth.

How are we to maintain the tone and dignity of our profession, and overcome the degrading influences of our brother of doubtful practises, both upon the profession and the people? The only remedy I can suggest is education—not necessarily a college education, but a professional education in all that the word implies.

The foundation of all professional attainments must be laid deep and broad. Our dental literature, our colleges, and our societies have been the chief factors in the development, growth, and the establishment of our present position. As education is increased, the inclination toward engaging in the doubtful practises of the quack is diminished. I believe the well-educated man—one that reads a number of dental journals and has a good knowledge of anatomy, physiology, bacteriology, and chemistry—will rarely, if ever, become empiric.

We lose much good life out of our societies by unsound ideas of the requirements of the code of ethics.

I believe in order to maintain the honor and dignity of a profession certain conditions and restrictions must be placed upon the actions of its members. Education is acquired by being subjected to certain formal regulations and restrictions.

The highest perfection of manhood is the result of education and development. If a man has not had the training requisite to a perfect development of professional character while in college, why not take him in the local and state societies? and then the work of education can continue. I do not believe that professional honor and dignity is always of a spontaneous origin and growth. And if it is, it does not exclude the idea of employing certain lines of instruction to favor a more perfect development.

In private life a man may possess tact, delicacy, and propriety, and all the instincts of a gentleman; and yet, not having that training requisite to refined society, invariably appear at a disadvantage in social circles. He needs instruction to prepare him for the unlooked-for contingencies that may arise and lead him to embarrassment. Likewise in the profession a man requires special training to prepare him for the courtesies he will be called upon to extend and receive.

He may be a gentleman at heart, and may resolve to do nothing inconsistent with professional honor and dignity; and yet, through ignorance of the consequences of certain actions, he may compromise his professional character. It has been said, and well said, that our societies are the postgraduate schools of dentistry. The rank and file are clamoring for the practical, and it seems to me that the need of society to-day is to get it down to a practical basis. Make the requirements attractive, instead of repelling, and make it the postgraduate school of our state.

Help to lift up the weaker brother; get the young men interested; encourage them to write papers; ask questions; give incidents of practise, etc. I know by experience that the timid need encouragement; and if they do venture before the society with papers, don't jump upon them with both feet and have them wallowing so deep in the dust that you will never see them again.

We must remember that there is nothing infallible. We must school our prejudices and practise the lofty virtue of toleration. We should say or do nothing that would wound the pride or feelings of a younger or weaker member. Men become brilliant, proficient, and polished by rubbing up against men in their own walks of life; so it is with the dentist. The best and most representative men of our profession are usually active in society affairs. To brush up against these successful men is very helpful and can not fail to inspire ambition within those who are listening and looking on.

Only about one-fifth of the members of Tennessee are members of the state society; there should be many more, and I believe that if they could realize the benefits to be derived from attending these meetings our membership would be much larger. Very many of these non-members are worthy representative men of the profession; men of good character, thoroughly conscientious and painstaking in their operations, honored and respected in the communities in which they live. Steps should be taken by this association to look up these men, and a committee appointed to enter into correspondence with them, with a view to getting them interested in association work.

This is a question that is somewhat difficult to manage, and should be well considered before acting. A committee was appointed two years ago to work on this line, but the scheme was not practical and could not be carried out. The present officers of the association undertook work of this nature, and sent out about one hundred and fifty letters to non-members. Of this number answers

were received from two persons; some twenty or thirty were returned to the writer unclaimed. It was the intention to follow up this work, but our list and all correspondence pertaining to this society previous to April 3 were destroyed by fire, and we were unable to carry on the work. The fact that one letter in every five was returned unclaimed would indicate the necessity of a revised list of the dentists of the state, and also of ascertaining who are worthy to be invited to attend our meetings and participate in our deliberations.

The subject of popular education has been agitated for a few years in this society, and a committee was appointed with instructions to distribute literature through the schools of our state, by the assistance of the superintendent of public instruction. I hope ways and means can be provided whereby this work can be carried on successfully and finally result in the adoption of certain lines of instruction in our public schools pertaining to the importance of the proper care of the dental organs.

It is a fact that the only instruction the public is receiving through the newspapers of to-day is that provided by the advertising dentist, and this is very misleading, more often indicating that the teeth are of little value than otherwise, instilling false notions concerning the importance of dentistry that is often humiliating, and indicating the unimportant position we occupy among the professions, in the eyes of the common people. They make promises that many times they have not the ability to fulfil, thereby working indiscriminate harm, by destroying public confidence.

An effort should be made by the profession to establish a change of sentiment on the part of the public. There is too much dentistry undone and too many idle dentists, and the only feasible plan suggested so far to balance this inequality seems to be in an educational way.

The benefits likely to follow from both popular and professional education have been seen and discussed, but as yet no acceptable plan devised. The subject should be kept before the profession, and I would be proud if Tennessee should be the state to make the first practical move on this line.

I would suggest that the election of officers for the ensuing year be held before the closing session, in order that the incoming officers have an opportunity to formulate plans for the year's work. I would also recommend that the association invite to be present at the next annual meeting some distinguished member of the profes-

sion, to give instruction on special lines of work pertaining to the practise of dentistry, the expense incurred in procuring this instruction to be paid out of the funds of the association.

A CLINICAL REPORT ON THE EXTRACTION OF LIVE PULPS AND IMMEDIATE ROOT-FILLING.*

BY N. C. LEONARD, D.D.S., M'MINNVILLE, TENN.

SINCE, in cases where it becomes necessary to remove the pulp from the tooth, the practise of first devitalizing it by the application of arsenious acid has proved so unsatisfactory in the hands of the majority of operators, it is obvious that a better method is in demand, and would meet with a general welcome from the dental profession. The objections to the practise referred to are so well known and have been mentioned so often that it is unnecessary to enumerate them here, though we will have occasion to refer to them by way of contrasting it with what I regard as a much better and simpler method. To my mind the most serious objection to the use of a devitalizing agent is that the death of the pulp necessarily produces a septic condition of the root canals that in the majority of cases is extremely difficult to overcome—that is, we can *never* feel absolutely certain that there is not a small portion of the decomposing pulp left to cause trouble at some future time, even though the pericemental inflammation usually resulting from the direct irritation of the arsenic has been completely allayed, and the tooth is apparently in an aseptic condition. To follow the rule of the surgeon, where a member is to be removed, all septic influences should be avoided as much as possible, and the operation performed on healthy, living tissue, instead of sloughing it off by means of a devitalizing agent, and thus leaving, perhaps, a portion of the dead matter in actual contact with the living—a practise that seems to me wholly inconsistent with surgical principles.

In a paper read at the last meeting of our state society by the present incumbent of the chair, Dr. U. D. Billmeyer, of Chattanooga, Tenn., he recommended a method of anesthetizing and extracting pulps which I believe should be universally adopted on account of its ease of application, its efficiency, and its satisfactory results. For the past fourteen months I have used this method exclusively, and have had so much satisfaction from it that I can recommend it most heartily to every member of the profession.

* Read at meeting Tennessee Dental Association, July 7-10, 1897.

The method I refer to is substantially as follows: After the debris has been removed from the cavity and a good exposure obtained, a few crystals of cocaine are pulverized on a mixing slab and moistened to a pasty consistency that can easily be conveyed to the tooth on the point of an instrument. After placing this paste in contact with the pulp, a piece of slightly softened wax—a little more than enough to fill the cavity—is placed over it and in contact with the walls of the cavity, then pressed firmly with the finger or a pellet of cotton held firmly in a pair of pliers. The pressure injects the cocaine into the pulp, thus completely anesthetizing it, after which it can be removed painlessly by the use of nerve broaches. Since adopting this method I have used it in fifty-one cases, having used arsenic in but one case, that of a nervous lady who was unwilling to submit to the slight pain incident to injecting the cocaine.

Of these fifty-one cases, four were incisors, two cuspids, eleven bicuspids, twenty-five first molars, five second molars, and two third molars. In two of these cases, for some reason, perhaps faulty manipulation, I was unable to anesthetize the pulp. In one of these, the one referred to above, I applied arsenic, unsuccessfully. The other patient was dismissed with the hope that the pulp might be removed at a subsequent sitting; but the tooth ceased aching, and the patient did not return.

In another case, after anesthetizing the pulp in a lower molar, I failed to find but one of the root canals on account of malformation, and had to extract the tooth. This, however, could not be counted a failure of the *method* under consideration, as the pulp was completely anesthetized.

In all the other cases the pulp was removed and the root canals filled immediately, but one case proving unsuccessful, and that on account of a broken nerve broach that was found projecting about one-sixteenth of an inch through the apical foramen.

Of the remaining forty-seven cases, only one gave the slightest trouble, and that required but a single treatment for relief. The others, with but two or three exceptions, did not give evidence of the slightest pericemental inflammation, and these exceptions were but slightly sore.

The time alone saved by this method, taking out of consideration every other advantage, is enough to justify its adoption in preference to the old one, even though the results were equal. The pain of injecting the cocaine I have found to be but slight, and by far more preferable than that frequently caused by arsenious applica-

tions. As a root-filling in these cases I used a paste made of equal parts of iodoform and oxid of zinc mixed with oil cinnamon, a preparation that I use almost exclusively for root-filling, and one that seems peculiarly suited for immediate root-filling after the extraction of live pulps. The cinnamon deodorizes the iodoform almost completely, making its use unobjectionable in the mouth of the most esthetic patient. This paste can be used to advantage for filling even the smallest root canals, as it can be easily introduced on a smooth broach and pumped into the canals. Then by pressing the excess that should be left at the mouth of the canal firmly with a pellet of cotton held in the pliers the excess of the oil cinnamon can be removed and at the same time the filling in the root firmly packed. This makes a filling that is permanently antiseptic, and, so far as I have been able to judge, possesses all the advantages claimed for any root-filling. It seems entirely non-irritant when placed in contact with the soft tissue, making a satisfactory nerve-capping, and I believe that in cases where only a portion of the live pulp has been removed and the operation has been aseptic, if this dressing be used and placed directly in contact with the remaining portion and the cavity filled, the lesion will heal by first intention and the vitality be permanently preserved.

DIAGNOSIS.*

BY H. E. BEACH, D.D.S., CLARKSVILLE, TENN.

DIAGNOSIS, which primarily means the art of recognizing the presence of disease from its signs or symptoms, and deciding as to its character; also, the decision arrived at.

The successful practise of the healing art rests solely on the ability of the practitioner to clearly diagnose the departure of natural function from its normal condition; and yet, if one is able to do this and no more, he will often find himself at sea as to the best means of wooing wayward nature back to its normal or physiological condition. To determine the distinguishing characteristics between similar diseases, or diseased conditions when the symptoms or signs are largely similar, is of such vast importance that it forms a subject of itself: "differential diagnosis." Let me ask the question: Who among you would feel capable of treating a patient for the

* Read before the Tennessee Dental Association July 8, 1897.

common complaint of odontalgia, or, as your patron says, toothache, who was unable to differentiate between pulpitis and periodontitis? While many diseased conditions make themselves manifest in a manner similar to each other, there is usually, if not always, some pathognomonic symptoms which enable us to differentiate between it and others of a similar nature.

When I agreed to write this paper, it was not my intention or expectation to write under the broad head of "physical diagnosis," but simply to make some suggestions as to a few simple methods of diagnosing pulpless teeth or teeth with dead pulps in them. First, let me say that all teeth with dead pulps in them are *not* pulpless teeth. To differentiate: A tooth may have a pulp in it that has recently become dead from concussion or strangulation; this would be a dead tooth in the common phraseology, but not a pulpless one. I would not say a tooth with a dead pulp in it is a dead tooth, nor would I say a pulpless tooth is a dead tooth; yet, so far as the major portion of it is concerned, it is as dead as would be our whole body if our heart or brain were removed. But a pulpless tooth is one from which the pulp has been removed, whether it was dead or alive when removed; while a tooth with a dead pulp may or may not have the pulp still remaining in it. In either case the common verdict is that it is a dead tooth. Then why define the difference? I answer briefly: The pulpless tooth can not have putrefactive decomposition of the pulp, while the tooth with a dead pulp can and often does do so. This being a fact, differential diagnosis is of the greatest importance, in consideration of the fact that in either case there may be, and often does occur, peridental inflammation that would require a totally different treatment. Again, teeth may, and sometimes do, show many of the characteristic signs of devitalization, such as pain, soreness, elongation, etc., when the pulps are very much alive. Exostosis of cementum, inflammation of the lining membrane of the antrum, congestion of the tissues about the teeth when pyorrhea is present, impaction of food, or the careless use of wooden toothpicks are some of the causes which sometimes produce this condition. In order that this paper may not be too long, I will only mention some of the pathognomonic signs that will, if carefully and properly observed, enable most of us to clearly differentiate the pathological conditions whenever it becomes necessary to do so.

First, a tooth with a dead pulp in it shows very little, if any, change of color. It is not sensitive to cold, but will indicate clearly

that the pulp is dead—first, by becoming painful; secondly, by soreness to pressure or percussion, elongation, etc.

Perhaps it would be well to state, by way of parenthesis, that pulps sometimes die and the tooth will never give pain, the pulp drying up without putrefactive decomposition, but this is an exception to the rule, and not the rule in such cases.

Pulpless teeth may be recognized, first, by change of color, sometimes very decided, at other times slight; but a practised eye will usually be able to determine the condition, even where the tooth has been skilfully treated and filled. There will be some opacity under the free margin of the gum that will speak pretty clearly as to the loss of pulp.

Secondly, and very positively, your patient will be able to tell you whether the "nerve" was ever taken out or not. The pain in both classes of teeth above referred to begins with a feeling of fulness and slight uneasiness, growing worse on lying down at night, and is slightly less painful after arising in the morning, but if left to itself gradually grows worse until it becomes unbearable to the patient, and then the trouble begins with the dentist.

That class of teeth or character of pain, with some of the symptoms that are caused by pulpless teeth or devitalized pulps that are referred to as having some of the same symptoms, may be recognized by their extreme sensitiveness to cold, or, I might say, thermal changes, whether it be cold or hot. This difference alone is sufficient to determine the nature of treatment.

I have made these suggestions without any elaboration of detail, in order that your honorable body may have ample opportunity to do so yourselves; and if you are unable to elaborate on, and criticize what I have said, I can assure you it is no fault of my own.

Selections.

*THE STUDY OF ANATOMY.**

BY W. C. BARRETT, M.D., D.D.S., M.D.S., BUFFALO, N. Y.

THIS association has wrought a great work in securing the adoption of something like uniformity of action in the admission of students, and in the raising of the general educational standard. If one would have some comprehension of its beneficent influence, he has but to reflect upon what was the general character of American schools, and what their reputation abroad before the organization of the National Association of Dental Faculties, as compared with the present condition. And yet it has done but a small proportion of its manifest duty. Its accomplishments have been elementary.

It is not too much to say that our professional reputation must be what our colleges make it. We are the educators of those who are to be the leaders in the professional matters of the future. The next generation of dentists will be what we shall make it. Legislators may pass laws to regulate and restrict dental practise, but the stream can rise no higher than the fountainhead, and the practitioner of tomorrow must get his training and derive his professional knowledge from the school of to-day. He must enter the profession by submitting himself to our guidance. The colleges are the fountainhead, and the stream will be limpid or foul according to whether we purify or contaminate it.

This should be a proud position. It certainly is a responsible one, and woe betide the college professor who does not realize his accountability! The man who accepts the honor which may appertain to this distinguished station, without striving his utmost to be in every way worthy of it, to fulfil every duty with an eye single to the best interests of student and profession, is unworthy a place in our ranks. He who assumes to arm the young men of our country for the battle of life, to fit and equip them for an hon-

* Read by request before the National Association of Dental Faculties, Old Point Comfort, July 31, 1897.

orable career, simply that he may minister to his own good, who takes the teacher's place and ascends the instructor's rostrum from selfish motives, is a worse hypocrite than the preacher whose everyday life belies his own sermons.

I believe that we are all sincere in desiring to make our schools, and through them the profession, all that they should be. To secure this it is not enough that we look solely to the preliminary qualifications of those whom we accept as candidates for a confidential position in American families. We need to make our instruction as perfect as possible. This can not be done unless there is a generally accepted standard and some uniformity in system. At present one of our greatest sources of weakness lies in the fact that there is no common comprehension of a standard of methods. One school begins instruction with the alphabet, proceeds to the construction of simple words, and by regular gradations to the building up of sentences; another commences by an analysis of the sentence into its component words, and then studies the elementary symbols constituting the words—that is, one teacher is synthetical, and the other analytical. A student takes his first and second year in one school, and then circumstances or inclination cause him to finish his course at another. He commences under analytical teachers, and closes with a school that only arrives at the stage of analysis in the closing year. Hence, in reality that student never reaches the end of any regularly graded course. In this way the practical efficiency of that graduate can never be assured. Let me illustrate this by the various methods of arriving at a knowledge of that basal study in all schools that attempt to teach the healing art: anatomy.

Some teachers open their course with an examination of the elements of which the human body is composed—that is, they begin with histology. They commence with the cell, and after having given a fair knowledge of that, they proceed to construct the cells into tissues, which are then considered. Then the tissues are built into organs, and finally the organs into the systems which they compose, and they do not arrive at a consideration of the human body as a whole until the last year.

Another pursues the opposite course. He begins with a study of the anatomy as a complete system. He considers its functions, and then goes on to study the organs whose actions make function, and finally to the ultimate elements of which organs and tissues are composed, and whose aberrant functions afford the pathological disturbances with which it is to be his life's work to battle.

The student who spends his first year in a school that begins with histology, and who goes to one that ends its course with tissue elements, never gets beyond elementary matters in his entire college training. This certainly will not tend to make the best practitioners, or to raise our profession to its highest point of efficiency. There should be a comprehension of the benefits of each method, a careful discussion of the merits of all systems of teaching, and an intelligent and discriminating adoption of that which is best. To this end I have accepted the invitation of the Executive Committee to bring this subject before you.

I am a believer in the analytical system. I think it is easier to arrive at an understanding by taking in pieces that which we do not construct, and thus get at a knowledge of the mysteries of that which we must attempt to repair. Let me give you my reasons for this faith, and then please allow me to listen while you show me wherein I am wrong, or confirm my prepossessions by your own corroborative testimony. Do not then understand me as speaking dogmatically when I propose the following methods in teaching anatomy, but only as offering suggestions.

Our sole reasons for examining tissues and organs is that we may learn their action and function. Hence we should begin with function. This requires that the preliminary examination should be of the system, and not of its organs. The study of anatomy, then, should commence with a general examination of the body as a whole. In a dental school the first year should be devoted to general anatomy, beginning with osteology, or the framework. Then the viscera should be taken up, and their general morphology and function should be studied. This should be followed by myology, syndesmology, and neurology, that a fair idea of the whole body may be obtained. Practical anatomy should be commenced this term, and one extremity dissected. It has sometimes been urged that the student should not dissect until he has learned something of anatomy. This argument would be cogent if the object were to learn how to dissect. But we dissect to learn anatomy, and do not learn anatomy to discover how best to dissect. All the study of this year should be general. Not a hint of any specialty should be given, and hence the teacher for this year is preferably a medical man. If he is a dentist, he is apt to introduce his specialty too early. The general study of the human body should be finished in the freshman year.

In the second, or junior, year the student begins to differentiate

in his study. He should now take up regional anatomy. He has finished the study of the body as a whole. Not that he has learned all that he should, but he has devoted all the time that can be spared out of a three years' course, and he takes up the study of the part to which he is to devote his attention as a specialist. His field is bounded below by the clavicle, and he must have a special, definite, intimate knowledge of all above that. As a part of this he commences the study of dental anatomy. The first step in this is comparative dental anatomy—that is, the study of the dental organs as a whole, precisely as he began the first year in general anatomy. The dentist who learns nothing of the general relations of the teeth, and whose comprehension of them is only that they are organs out of which he is to pick his living, can not claim any scientific knowledge. The teeth in all the different classes of animals should be generally studied, until the dentition of man is reached, when his teeth should be intimately studied in all their anatomical relations. The anatomy of the second or junior year is, as a whole, devoted to organs, as is that of the first year to systems.

No man can finish in two years the anatomical studies necessary to dental practise. He imperatively needs the third year, and this should be given up to careful examination and investigation of tissues. In this year the microscope is a necessary adjunct. The student has now learned enough of function to comprehend how it modifies, or is modified by, structural development. In this third and finishing year he does not entirely confine his attention to histological anatomy, but he continues regional anatomy, because he is not yet sufficiently familiar with the organs, especially of the head. He also bestows considerable attention upon surgical and morbid, or pathological, anatomy. But his chief attention is given to structural or histological anatomy, and he thus finishes his course by attention to the minutiae and detail for which he is unprepared during his first or second year, because he has not then the general knowledge to allow him fully to comprehend it, and because his mind usually is not sufficiently trained and disciplined to give him mastery over his attention.

The student who thus advances by regular gradations each year, separately taking up and mastering a definite branch or part of the subject, will be likely to retain his knowledge, because he has advanced toward it by a direct route, and because each division is made subsidiary to the next, and there is a regular gradation and progress.

If such a system, or some other regular system, can be adopted in its general features by all of our schools, the grading of one who for any cause changes his college during his course will be greatly facilitated, and he will not be likely to miss any of the subdivisions. Our graduates will be better qualified for practise, and the tone of the profession will be elevated.

I would pursue the same general plan in the study of chemistry and physiology, the other basal studies of the theoretical curriculum. They should extend through the entire course, the last year in each to be devoted to special instruction adapted to an exclusive dental practise.

Materia medica should begin with the first year, but therapeutics can not be profitably commenced until the student has obtained some knowledge of drugs, and hence it becomes a second and third year study, materia medica extending over the first two years.

Embryology properly belongs to the second year, because its study demands an acquaintance with technical terms unfamiliar at the outset, and because it is an intricate and involved matter which requires a disciplined attention. Aside from these, there is no reason why it might not be begun with the freshman year.

Metallurgy is a second-year study, because its consideration demands a good acquaintance with general chemical laws, and these are acquired during the first year.

Surgery is a third-year study, because it demands not only a complete knowledge of anatomy, but a trained hand and absorbed attention as well. The student should begin the study of surgical pathology in the second year, and it may perhaps form a part of his general pathological studies.

Pathology should be differentiated from operative dentistry. They have very little in common, save that each may be curative. But operative dentistry is wholly mechanical and manipulative, while pathology should cover all medicinal and general treatment. Operative dentistry is largely prophylactic, while pathology is so to but a slight degree. Whatever has to do with the action of drugs, whether generally or topically applied, belongs to pathological practise. In the treatment of alveolar abscess, for instance, operative dentistry has very little part, its practise being confined to that which is mechanical, or that which is done with instruments. I believe that in the past we have not sufficiently distinguished between the two. A sharp line of demarcation should be drawn between that which is mechanical and that which is therapeutical.

It will be seen that I have not attempted to assign any place to the practical part of dentistry. My subject was the teaching of anatomy, but I have thought it not inappropriate to suggest some thought concerning other didactic studies.

Let me repeat that I have only considered the matter tentatively, and realize as fully as any of you that there is room for much consideration and extended discussion before the various studies in our curriculum shall each have been definitely assigned its appropriate place.—*Dental Cosmos*.

FILLING CHILDREN'S TEETH.*

BY F. D. PRICE, L.D.S., D.D.S., TORONTO.

WHATEVER may be thought of the methods of treatment herein prescribed, they will be freely given. For, if they do not fully accord with the practise of some of my learned friends, they will the better stimulate discussion, and bring out many valuable suggestions. I wish to confine myself to the subject of "Filling Children's Teeth." But first, by way of introduction, let me make a crusade against the too common practise of ruthlessly extracting the baby's teeth because they cause pain. I believe that to persuade a child to sit in a dentist's chair, and perhaps under a promise to "just look at the tooth," or "won't hurt any," to tear out a tooth, is a crime not less than feloniously breaking a man's arm or some other equally calamitous injury. The man could more easily recover the use of his arm and his nervous energy than the child could recover from the injury done the lost member, the lifelong dread of the dentist's chair, the lack of confidence in all dentists, and the consequent permanent neglect of the teeth. I shall not attempt to pass just sentence of punishment on such a dentist. He will get his bitter reward some time, somewhere. Neither shall I prescribe methods of painless extraction of baby teeth. They should, as a rule, never be extracted before the time for their replacement by permanent teeth, and nature more kindly performs this operation than the dentist usually does.

As much care should be taken to preserve temporary teeth as the permanent ones. This requires a very careful handling of the little ones. The dentist being a stranger, they naturally shrink from him. Some dentists, anyway, would make a child's blood

* Read before Toronto Dental Society.

run cold by the savage visage and gruff manners they present when a little sufferer is offered for treatment.

One mighty big preparation for the operation is to get himself in shape. His heart should be full of love and sympathy, his face full of smiles, his tongue full of encouraging words, as his head is full of knowledge. He must first get the child's confidence by causing as little pain and weariness as possible, and by medicines relieve the suffering. If he succeeds this time, he can easily retain a life-long patient.

First as to the filling of temporary teeth. Soon after the age of six months, and thereafter every six months, the child's teeth should be examined. Abrasions or shallow cavities that will not easily retain any filling, especially those in the posterior teeth and above the buccal gum margins, may be treated by applying a twenty-five per cent solution of silver nitrate. A little care should be taken by using a napkin or cotton to prevent the caustic touching the mucous membrane. If necessary, finish the operation with an application of sodium chlorid or common salt, to prevent further action of the nitrate, and so prevent injury to these soft parts.

Any small cavities should be lightly excavated, their margins well trimmed, and amalgam for the posterior and oxyphosphate for the anterior used. Large cavities on the grinding surfaces of the molars should be prepared in the same way. Remove the debris and as much of the decalcified dentin as can be done quickly and without causing much pain. Be careful to trim the margins well, leaving no decay there. Apply silver nitrate or carbolic acid to the softened dentin remaining, and fill nearly full with oxyphosphate of zinc, finishing with amalgam. Let me here put in a protest against the too common idea among dentists that fillings in the temporary teeth may be of the most temporary nature, as they can be refilled if necessary. In this country the child having large cavities filled may be only four or five years old, and the fillings may need to serve as many more years. If the temporary filling soon fails, the tooth may be neglected and suffered to sadly degenerate before being again attended to. Besides, if the fillings soon fail, the parents lose confidence in the permanence of that particular dentist's operations. So I advise to use amalgam to protect the oxyphosphate fillings, and no preference for copper amalgam either. Large cavities in the anterior teeth are usually on the approximal surfaces.

All approximal cavities, anterior or posterior, are, as a rule, bet-

ter filled with gutta-percha. The pink gutta-percha used for base plates is perhaps the best, as it can be easily, quickly, and comfortably manipulated, and, because of the sulfur incorporated in it, it is antiseptic. In preparing these cavities cut away as little as possible of the margin, and excavate with small hand instruments. The engine is a savage instrument, except in the hands of a very skilful and careful dentist. Apply a disinfectant in the cavity for a while before filling. The gutta-percha should be warmed on a slab over a glass of hot water, or, better, on a square bottle having hot water within. Insert in the tooth in as large pieces as can be used, quickly packing in place with instruments slightly warmed in water or alcohol flame. If two approximal cavities open toward each other, reaching perhaps quite or altogether up to the gingival margin, make one filling of the two. If the teeth are close together, as temporary molars usually are, do not fear to pack the gutta-percha tightly in. If it is exposed to trituration, it will the better force the teeth a little apart, a condition so desirable for causing the first permanent molars to erupt toward the back of the jaw. An approximal gutta-percha filling in the anterior tooth may be finished by drawing the smooth side of a thin polishing-strip against it, first having dipped the strip in chloroform.

If a pulp is nearly exposed, so that the tooth is exceedingly sensitive, or if it has been exposed in excavating and is not wounded, prepare a paste by mixing about equal parts of zinc oxid, carbolic acid, and oil of cloves, and placing a small amount over the exposed or sensitive part. Over this place a piece of asbestos paper, then gently flow over this oxyphosphate of zinc sufficient to prevent pressure being conducted from the surface filling of amalgam or gutta-percha. Occasionally it is advisable, especially in very large cavities, to finish with oxyphosphate. A paste often used is a mixture of iodoform in glycerin.

Dr. Perry, of New York, advocates the capping of pulps in temporary teeth that have been for some time exposed, but not aching. We think in such a case a very temporary stopping should be inserted, with instructions to the patient to return in a few days for final treatment. The comfort of the tooth during this interval will determine the subsequent treatment, whether it be to remove the capping and devitalize the pulp, or finish the filling more permanently.

If, however, the pulp has for some time been exposed and painful, it should be devitalized. Prepare a paste by mixing cocaine

crystals, arsenious acid, and oil of cloves, regulating the proportions of the cocaine and arsenic by the condition of the tooth. If very much inflamed, use more cocaine and very little arsenious acid. Put a little of the paste on a particle of paper, and gently lay over the exposed pulp. Thus an application can be made that will probably allay the pain, or at least cause a very little. In about twenty-four hours, when devitalized, open into the pulp-chamber and clean out the canals as far as can easily be done, being careful to not penetrate through the apical foramina. Thoroughly sterilize the cavity and root-canals. Fill the canals and pulp-chamber with the pink gutta-percha before referred to. It can be forced in with pluggers or blunt probes, each succeeding particle driving that before inserted quite to the end of the root-canal. When the roots are becoming absorbed this will be found to be better tolerated by the tissues than most other root-fillings, and will probably itself be quite readily absorbed. Finish with a good filling, and do not leave any opening for drainage.

Often children are brought to us for treatment with a baby tooth violently abscessed, the little patient suffering extremely and afraid to be touched. Gently wash or excavate the débris out of the cavity, and, if possible without causing pain, remove enough softened dentin to gain a small opening into the pulp-chamber. Into this opening pack a small piece of cotton dipped into a saturated solution of iodin in tincture of aconite. Usually it is not necessary to put any on the gum; but if any escapes from the cavity about the gum margins, it will do good rather than harm. The prompt action of this medicine in such a diseased condition is wonderful. The apical foramina are so large that the antiseptic and disinfecting qualities easily reach any infected parts in the alveolar tissues, and any decomposition in the tooth is quickly checked. Nature quickly responds to the stimulant thus offered, the pain is quite sure to soon disappear, the parts are healed and resume their normal vitality. The filling of teeth in this condition is not so simple as in most other conditions. Probably gutta-percha for root and crown fillings is to be preferred. At any rate, it should be some material that may be easily removed if there is a return of pericementitis.

We often find temporary teeth devitalized and yet giving no trouble. The crowns may be gone, and only roots remaining. Do not extract, as nature needs these roots to preserve the arch for the approaching permanent teeth. Nature is very kind in the getting

rid of baby teeth; and if dead teeth are comfortable, we may best prevent trouble by leaving them alone. A crown filling with an opening made through the side to the pulp-chamber for drainage is good practise.

We have now come to the consideration of the permanent teeth until about the fourteenth year. During these earlier years the structure of these teeth is so soft that cavities once seated soon develop, and seriously hinder their preservation. The least suspicion of decay should be noted, the softened structure cut away, and a filling inserted.

The first permanent molars are the first teeth usually needing attention. Gold is not recommended during this period, with but few exceptions, because of the soft nature of the enamel prisms, they being injured by the force necessary to insert a gold filling. One exception is in filling a dead tooth, where, of course, there will be no improvement in the tooth-structure. Tin-foil is much recommended for small temporary fillings in permanent teeth. Amalgam is probably better, being more lasting. Approximal cavities, both posterior and anterior, if not large, should be filled with gutta-percha. In fact, the general treatment of the filling of the permanent teeth during this period is much the same as that of the temporary teeth. After the fourteenth year all cavities, as a rule, are better filled with gold. Oxyphosphate of zinc is a treacherous filling in these early permanent teeth. It is too often suffered to entirely fail, and allow the tooth to become seriously decayed before being again attended to. It should never be placed at the gum margin of approximal cavities. If it is to be inserted in approximal cavities, first partially fill with gutta-percha or amalgam, and finish with the oxyphosphate. However, it is excellent as a lining in deep cavities to prevent irritation of the pulp.

Root-canals in permanent teeth should not be filled with medicated cotton. The excuse that it may easily be removed in case of trouble is very good, but trouble is apt to begin some time, and its removal be necessary. The root-filling of permanent teeth is too important and lengthy a subject in itself to be discussed in a paper of this nature, so must be lightly passed. Fill the posterior lower molar roots and the palatal upper molar roots and all roots that are easy of access as follows: With a smooth broach pass into the canal some oxyphosphate or oxychlorid of zinc, lining it, if possible, quite to the apex. Having a tapered piece of lead wire prepared, pass it into the canal, forcing home with a plugger. The lead can be compressed, and will force the plastic into the remotest parts of the canal. The lead salts are antiseptic; and if the canal has before been well prepared and sterilized, pericementitis will never be likely to arise. Canals more difficult of access are better filled by forcing in gutta-percha with a blunt probe. Chlorapercha is not preferred. This concludes the most important cases in the filling of children's teeth.—*Dominion Dental Journal.*

Editorial.

IMPORTANT NOTICE TO THE ALUMNI OF THE DEPARTMENT OF DENTISTRY, VANDERBILT UNIVERSITY.

You are cordially invited to attend "Vanderbilt Day," which will be observed at the Centennial October 11, when Dr. Chauncey M. Depew will deliver an oration over a bronze statue of Cornelius Vanderbilt.

THERE will be a clinic by the alumni at the Department of Dentistry October 12 and 13; and a reunion dinner by the Faculty to the alumni, evening of October 13. A full attendance desired. Please reply to Secretary if you can attend.

T. A. ATCHISON, M.D., *President*;
A. MORRISON, M.D., *Secretary*.

Jackson Building, Nashville, Tenn.

THE American Dental Association is now a thing of the past. Its last meeting was held at Old Point Comfort on August 6, when the union with the Southern was consummated and the new National Dental Association was born. The following officers were elected: President, Dr. Thomas Fillebrown; Secretary, Dr. George H. Cushing, Chicago; Assistant Secretary, Dr. W. E. Walker, Pass Christian, Miss.; Dr. James McManus, Hartford, Conn., Vice-President from the East; Dr. L. L. Dunbar, San Francisco, Vice-President from the West; Dr. B. Holly Smith, Baltimore, Vice-President from the South; Dr. Emma Eames Chase, St. Louis, Corresponding Secretary; Dr. Henry W. Morgan, Nashville, Treasurer. The Executive Committee is as follows: For three years: J. N. Crause, Chicago; V. H. Jackson, New York City; and L. G. Noel, Nashville, Tenn. For two years: M. F. Finley, Washington, D. C.; J. D. Patterson, Kansas City, Mo.; and H. A. Smith, Cincinnati, O. For one year: George Eubanks, Birmingham, Ala.; W. P. Dickinson, Minneapolis; and C. N. Peirce, Philadelphia. For the next place of meeting, August 30, 1898, Omaha, Neb., was selected.

AFTER the formation of the National Dental Association the members of the Southern Dental Association reorganized as the Southern Dental Association, Branch of the National Dental Association, and elected the following officers for the ensuing year: Dr. E. P. Beadles, Danville, Va., President; Dr. W. E. Walker, Pass Christian, Miss., First Vice-President; Dr. T. P. Hinman, Atlanta, Second Vice-President, F. P. Welch, Pensacola, Fla., Third Vice-President; Dr. B. D. Brabson, Knoxville, Tenn., Treasurer; Dr. C. L. Alexander, Charlotte, N. C., Corresponding Secretary; Dr. G. W. Foster, Atlanta, Recording Secretary; Drs. V. E. Turner, Raleigh, N. C.; S. B. Cook, Chattanooga, Tenn.; W. T. Arrington, Memphis, Tenn.; R. K. Luckie, Holly Springs, Miss.; W. R. Clifton, Waco, Tex.; and H. E. Beach, Clarksville, Tenn., Executive Committee. St. Augustine, Fla., was selected as the place for the next meeting, the date to be fixed by the Executive Committee.

VANDERBILT DENTAL COLLEGE OPENING.

NEVER in the history of this renowned institution has the prospect for a prosperous session been so promising. From Maine to Texas, from Oregon to Florida, students are coming to enter the ranks. The alumni are also expected in large numbers to attend Vanderbilt Day, to witness the unveiling of the Commodore Vanderbilt statue, and to listen to the oration of Dr. Chauncey Depew on this occasion at the Centennial Exposition; also interesting clinics at the Dental Department Building will be the order for several days, to be followed by a banquet to the alumni, tendered by the Faculty.

OPENING OF THE DENTAL DEPARTMENT, UNIVERSITY OF TENNESSEE, OCTOBER 6.

THE State Board of Health having raised the quarantine against the yellow-fever district, the prospects are bright for a large class this fall. The Faculty draws this inference from the unusually large correspondence the Dean has been struggling with during the recent heated term. The college is in first-class order, and the indications point to a large and busy clinic. On the 15th of January the school will hold a series of clinics at the college, under the auspices of the alumni. Quite a number of highly skilled operators have promised to be present, and these clinics should prove both interesting and instructive. The alumni meeting will be held two

days previous to the Commencement exercises. Should this meet the eyes of any of the alumni of the school, they are urged to attend, and to kindly furnish the Dean with the names and addresses of all the alumni of their acquaintance, as it is his desire to keep a correct roster of the graduates of the school. Students will find the Exposition very interesting and instructive during the month of October.

MARRIED.

Mr. F. W. Ledbetter and Miss Alice Moreland were united in marriage at Hallettsville, Tex. on Wednesday, July 7. Mr. Ledbetter is an old student of Vanderbilt University, and the HEADLIGHT joins his many friends in wishing him and his bride a long and happy life.

OBITUARIES.

WE are saddened by the receipt of a letter from Prof. E. W. Tarrant, of Brenham, Tex., to learn of the death of his promising son, J. F. Tarrant, a recent student of the Department of Dentistry of Nashville University. Having attended his second term at this institution, he was looking forward to graduation with the brightest prospects of an honorable professional career. We extend our heartfelt sympathy to his bereaved parents.

We greatly regret to learn of the death of the beloved wife of our dear friend, Dr. J. S. Dalton, of Jackson, Tenn., on the 21st inst. The Doctor is truly bereaved, having lost in rapid succession both father and mother, two brothers and a sister. The loss of his wife is the saddest of all, as she left a little daughter only two years of age. We extend to the bereaved father and orphaned daughter our sincerest sympathy.

We learn also of the death of Dr. E. C. Bailey, of Evansville, Ind. He was a prominent and successful dentist, and enjoyed the highest esteem of his brethren and fellow citizens. We regret that we have to record the death of so valuable a member of the dental profession.

DR. E. MAGITOT.

The Odontological Society of Chicago, recognizing the great services rendered by Dr. Magitot to the advancement of dental science, has adopted and ordered sent to the family of the deceased and to the dental journals of the United States and France the following:

"Magitot was born in Paris in 1833, and died there during the current year. His first contribution to dental literature was made in 1857, at the age of twenty-four, relating to the structure and development of the human teeth; while the last came from his pen in 1897, just before he died. During these forty years Magitot wrote no less than sixty-five books, essays, pamphlets, etc., dealing exhaustively with nearly every phase of dental embryology, histology, biology, pathology, hygiene, etc. No writer of any age has made as many, as varied, and as valuable contributions to dental science as Magitot.

"The priceless services rendered by him entitle him to rank as one of the foremost investigators in odontology. He was a member of numerous scientific bodies and societies, whose members sincerely mourn his loss. It may be truly said that, when Magitot passed from the scenes of human activity, dental science, not of France alone but of the entire world, lost one of its noblest and greatest minds.

"The dental profession of the United States, recognizing and appreciating Magitot's services, keenly mourn and sympathize with his bereaved family, and with the profession of France, by reason of his demise.

A. W. HARLAN,
J. W. WASELL,
LOUIS OTTOFY,

Committee."

"Chicago, September 1, 1897.

MAGAZINE NOTICE.

THE rapid and wonderful development of dentistry, especially in America, has created a demand for the very latest intelligence relating to this important specialty. The first number of the *American Dental Weekly*, published in Atlanta, Ga., now lies before us. We welcome the new publication among our list of exchanges, and wish the enterprising editors and publishers abundant success.

BOOK NOTICES.

ACCIDENTS AND EMERGENCIES. A manual of the surgical and medical treatment of emergencies in the absence of a physician. By Charles W. Dulles, M.D. Published by S. Blakiston, Son & Co., of Philadelphia.

This popular and useful manual has reached its fifth edition. It is by no means unworthy the attention of members of both the dental and medical professions, and is written in such simple style

as to be readily comprehended by the laity, upon whom, in the absence of the medical man, the first aid to the injured usually devolves. We commend it to the careful perusal of every one.

A PRACTICAL TREATISE ON MECHANICAL DENTISTRY. By Joseph Richardson, M.D., D.D.S., Late Professor . . . in the Indiana Dental College, etc. Seventh edition, revised, enlarged, and edited by George W. Warren, D.D.S. With six hundred and ninety-one illustrations, many of which are from new and original drawings. P. Blakiston, Son & Co., Philadelphia, 1897.

The reception given this work is evidenced by the demand for this seventh edition, which is universally recognized as authority upon this important branch of dental science. It is a lucid presentation of the mechanical laws governing the practise of the most skilful members of the profession, and is of interest particularly to those whose special talent and skill enable them to devote their time and labor chiefly to this department of dental practise. The work abounds in matter of great practical value to every practitioner and student of the science and art of dentistry. Every dentist should be thoroughly familiar with the technique concerned in all mechanical operations and appliances. We heartily commend this book, which has been so carefully rewritten and thoroughly revised, "making it practically a new work," that it deserves the consideration of all practitioners and students of mechanical dentistry.

NEW AMERICAN EDITION OF GRAY'S ANATOMY. A revision of the 13th English Edition by American authorities.

This magnificent work is just from the press of Messrs. Lea Brothers & Co., of Philadelphia. It is impossible to conceive of a more elegant and comprehensive treatise upon the science of anatomy than this book presents. It has been the recognized standard both in Great Britain and America for the past forty years, and the present edition is peculiarly adapted to the use of both teacher and student. There are many new and valuable features, including several chapters on the brain and nervous system and the abdominal viscera, by Drs. Gallandet and Brockway. In the way of illustrations there are a large number of splendid new engravings which are acknowledged to be the most effective and intelligible presentation of anatomical structures ever produced. This new edition will also meet the requirements of the dental practitioner and dental student, as the section upon the mouth and teeth has

been rewritten by Prof. H. H. Burchard, who is fully up on all the recent advances in this highly specialized department. To the oral surgeon this latter feature is very important, as the practical application of anatomical facts in medicine and surgery is distinctly characteristic of this last edition.

THE AMERICAN TEXT-BOOK OF OPERATIVE DENTISTRY. IN CONTRIBUTIONS BY EMINENT AUTHORITIES. Edited by Edward C. Kirk, D.D.S., Professor of Clinical Dentistry in the University of Pennsylvania, Philadelphia, and Editor of the *Dental Cosmos*. Illustrated with seven hundred and fifty-one engravings. Philadelphia and New York: Lea Brothers & Co., 1897.

We do not agree with a recent reviewer that a book written by a single person is always most systematic and satisfactory. The subject of operative dentistry is so very extensive that individual members of the profession are not equally familiar with all of its phases. Some have explored special fields of this exhaustive department, and hence are better qualified to write upon a particular subject. We are sure this is the case in the present treatise, and the editor has been very fortunate in his selection of the contributors, as is obvious from the following list of collaborators—viz., Thompson, Andrews, Burchard, Case, Christensen, Clapp, Cryer, Darby, Goddard, Guilford, Jack, Ottofy, Peirce, and Thomas. These, with the editor, Dr. E. C. Kirk, constitute a corps capable of doing justice to the subjects treated.

Dr. E. C. Kirk, the able and painstaking editor, deserves great credit for his systematic arrangement of the various chapters of this elaborate work. The first chapter is devoted to a consideration of the microscopic anatomy of the human teeth, by Alton Howard Thompson, D.D.S. The writer is wonderfully exact in his descriptive powers, and his style is both attractive and lucid. Next follows "The Embryology and Histology of the Dental Tissues," by R. R. Andrews, A.M., D.D.S., F.R.M.S., which, as we would naturally expect from so distinguished an authority, is handled in masterly style. He is a careful and keen observer, as depicted in his fine description and illustrations of microscopic structures. The chapter upon pyorrhea alveolaris is very interesting, although the matter is rather dogmatic, as the statement of his peculiar theories concerning the etiology, pathology, and treatment of this *bête noire* of the dental profession, and his opinions differ widely from those entertained and maintained by many eminent members of the profession.

The chapter upon the extraction of teeth is admirably written, and profusely and intelligibly illustrated, as is also the succeeding one upon the practical extraction of teeth under nitrous oxid gas, by a gentleman of great experience in the administration of this anaesthetic. We must beg to differ with him, however, as to the dangerous element concerned in its exhibition.

We have not time to follow the remaining chapters with a critical examination. These are: "Local Anesthetics and Tooth-Extraction," "Plantation of Teeth," "Management of the Deciduous Teeth," "Orthodontia Exclusively as an Operative Procedure," and "The Development of Esthetic Facial Contours." All of these are treated exhaustively and with the recognized ability of the authors.

TO OPEN PULP-CHAMBERS OF TEETH AFFECTED WITH PERICEMENTITIS.

WE often have to open up teeth which are very tender to the touch. The pressure necessary to make a steel drill enter the outer layer of enamel, together with the shocks caused by the revolutions of the flat-sided drill upon the uneven surface of the tooth, causes excruciating pain. To avoid this, grind with small stone a pit at the point at which you wish to enter the tooth. The drill will then run smoothly and penetrate much more easily. When desired to open on the palatine surface of the incisors or cuspids, after grinding the pit, take an inverted cone bur, a little larger than the drill intended to be used, and cut into the pit the depth of its diameter. This gives a flat surface for the point of the drill to start into, and avoids the shocks before spoken of. Keep the point of the drill well lubricated with oil of turpentine or glycerin.—*R. E. Sparks, Kingston, Ont., in Dominion Dental Journal.*

WHAT renders these local anesthetic nostrums most censurable is that they are pretentiously advertised as harmless, when, from their composition, they are far otherwise than safe to use.—*International Dental Journal.*

Associations.

NATIONAL ASSOCIATION OF DENTAL FACULTIES.

The fourteenth annual meeting of the National Association of Dental Faculties was held at the Hygeia hotel, Old Point Comfort, Va., commencing Friday, July 30, 1897.

The following members of the association were represented as noted below: Alabama Dental College, Birmingham, Ala., T. M. Allen; University of California, Dental Department, San Francisco, Cal., L. L. Dunbar; Columbian University, Dental Department, Washington, D. C., J. Hall Lewis; Howard University, Dental Department, Washington, D. C., A. J. Brown; National University, Dental Department, Washington, D. C., J. Roland Walton; Atlanta Dental College, Atlanta, Ga., William Crenshaw; Dental Department of Southern Medical College, Atlanta, Ga., S. W. Foster; Chicago College of Dental Surgery, Chicago, Ill., T. W. Brophy, Louis Ottofy; Northwestern University Dental School, Chicago, Ill., Theo Menges; State University of Iowa, Dental Department, Iowa City, Iowa, W. S. Hosford; Louisville College of Dentistry, Louisville, Ky., H. B. Tileston; Baltimore College of Dental Surgery, Baltimore, Md., M. W. Foster; University of Maryland, Dental Department, Baltimore, Md., F. J. S. Gorgas; Boston Dental College, Boston, Mass., J. A. Follett; Harvard University, Dental Department, Thomas Fillebrown; Dental College of the University of Michigan, Ann Arbor, Mich., J. Taft; University of Minnesota, Dental Department, Minneapolis, Minn., W. P. Dickinson; Kansas City Dental College, Kansas City, Mo., J. D. Patterson; Western Dental College, Kansas City, Mo., D. J. McMillen; Marion-Sims College of Medicine, Dental Department, St. Louis, Mo., J. H. Kennerly; Missouri Dental College, St. Louis, Mo., A. H. Fuller; University of Buffalo, Dental Department, Buffalo, N. Y., W. C. Barrett; New York College of Dentistry, New York City, F. G. Weisse, J. Bond Littig; Cincinnati College of Dental Surgery, Cincinnati, Ohio, G. S. Junkermann; Ohio College of Dental Surgery, Cincinnati, Ohio, H. A. Smith; Western Reserve University, Dental De-

partment, Cleveland, Ohio, George H. Wilson; Pennsylvania College of Dental Surgery, Philadelphia, Pa., C. N. Peirce; Philadelphia Dental College, Philadelphia, Pa., S. H. Guilford, Leo Greenbaum; University of Pennsylvania, Dental Department, Philadelphia, Pa., James Truman; Tennessee Medical College, Dental Department, Knoxville, Tenn., R. N. Kesterson; Central Tennessee College, Meharry Medical Department, School of Dentistry, Nashville, Tenn., G. W. Hubbard; University of Tennessee, Dental Department, Nashville, Tenn., J. P. Gray, L. G. Noel; Vanderbilt University, Dental Department, Nashville, Tenn., H. W. Morgan; University College of Medicine, Dental Department, Richmond, Va., L. M. Cowardin; Royal College of Dental Surgeons, Toronto, Canada, W. E. Willmott.

The following schools were elected to membership: Milwaukee Medical College, Dental Department, Milwaukee, Wis., represented by Reinhold E. Maercklein; Tacoma Dental College, Tacoma, Wash., the constitution being signed by proxy by Dr. Kennerly; New York Dental School, New York City, represented by John I. Hart; Ohio Medical University, Dental Department, Columbus, Ohio, represented by J. F. Baldwin; Baltimore Medical College, Dental Department, Baltimore, Md., represented by J. W. Smith and William Montell.

The application for membership of the University of Omaha, Dental Department, was laid over till next year, at the request of its officers.

Applications for membership were reported by the executive committee from the Pittsburgh Dental College, Pittsburgh, Pa.; the Dental Department of the College of Physicians and Surgeons, San Francisco, Cal.; and the Colorado School of Dentistry, Denver, Colo.

The following report laid over from last year was adopted:

Your committee on choosing a color respectfully report that they have decided to recommend the standard lilac as the distinctive dental color, and they recommend the adoption of the academic costume according to the requirements observed by the intercollegiate system.

The resolutions laid over from last year, making the annual college term seven full months, and recommending that the annual meetings be held in connection with the National School of Dental Technics, and at a time of the year when the colleges are in session, was negatived.

A committee consisting of Drs. Henry W. Morgan, M. W. Foster, Theo Menges, C. N. Peirce, and H. A. Smith was appointed to

meet a similar committee from the National Association of Dental Examiners, for the purpose of harmonizing the differences of opinion between the two associations. This committee reported the rules which had been agreed upon by the two committees.

The report was discussed at length and again referred to the committee, which later reported, through the Executive Committee, a resolution, which was adopted, providing for the codifying and arranging of the existing rules of the association, and the preparation of such additional rules as may be deemed advantageous to both organizations in advancing the standard of dental education in the United States. On motion, the committee which had had the matter in charge in the conference was continued for this purpose.

A communication from the Dental Department of the State University of Iowa was received, asking consent of the association to its conferring the honorary degree on Dr. F. P. Weber, of Cherokee, Iowa. The request was declined on the ground that it is contrary to the practise of the association.

A similar communication from the University College of Medicine, Dental Department, Richmond, Va., asking the privilege of conferring the *ad eundem* degree on Dr. Thomas G. Cowardin, of London, England, was refused upon the same grounds.

The rule regarding preliminary qualifications adopted in 1896 was declared to have been adopted in an unconstitutional manner, and was therefore rescinded. The following was adopted in its place, and by unanimous consent was ordered to go into effect at once:

Resolved, That the minimum preliminary education requirement of a college of this association shall be a certificate of entrance to the first year of a high school, or, in states that have no high school, of graduation from a grammar school, or its equivalent, to be determined by an examination.

Resolved, That nothing in the above shall be construed to interfere with colleges of this association that are able to maintain a higher standard of preliminary education.

A communication was received from the American Dental Club, of London, requesting the appointment of a committee to cooperate with a similar committee in Europe, for the purpose of securing just recognition of the diplomas issued by the colleges belonging to the association. The communication was favorably considered, and the President appointed as the committee Drs. W. C. Barrett, D. J. McMillen, S. H. Guilford, A. H. Fuller, and Faneuil D. Weisse.

The Ad Interim Committee reported that one new question de-

cided by them during the year was that a student who was in arrears for fees could not be accepted by another college if objection was made by the college to which he was indebted. This ruling was sustained by vote of the association.

The committee also recommended that steps be taken to secure definite knowledge as to the curricula and requirements of foreign colleges, so that the members of the association should be able to decide upon the standing of students coming from them. Referred to the committee appointed to consider the matter of Dr. Mitchell's letter.

A paper prepared by Dr. W. C. Barrett, Buffalo, N. Y., at the request of the Executive Committee, and entitled "The Study of Anatomy," was read by its author.

The paper was, on motion, directed to be incorporated in the official report and copies sent to the journals for publication.

A committee consisting of Drs. S. H. Guilford, Theo Menges, and M. W. Foster was appointed to select persons to prepare papers on subjects connected with the work of the association, to be read before the next meeting.

Dr. Barrett offered the following, which was adopted:

Resolved, That the final vote upon the admission of a college to this association shall not hereafter be taken unless a duly certified and qualified delegate is in attendance.

The following resolution, offered by Dr. L. L. Dunbar, was adopted:

Resolved, That, in order to maintain a reputable standing in this association, no college under its jurisdiction shall permit any member of its faculty or teaching staff, board of trustees, or stockholders to serve in a judicial capacity as a member of a State Board of Examiners.

Dr. Taft offered the following, which was adopted:

Resolved, That a committee of three on curriculum be appointed, whose duty it shall be to compare the schemes of study of the various dental colleges, with the view of harmonizing these schemes and making them as nearly alike as practicable, to report next year.

The Committee on Text-Books recommended the following: Essig's "American Text-Book of Prosthetic Dentistry;" Hodgen's "Dental Metallurgy;" Schafer's "Essentials of Histology," fourth edition; Abbott's "Principles of Bacteriology," third edition; Gray's "Anatomy," last edition; Luff's "Manual of Chemistry;" Burchard's "Compend of Dental Pathology and Therapeutics."

The report was adopted, and the committee was instructed to examine Kirk's "American Text-Book of Operative Dentistry" and Marshall's "Injuries and Surgical Diseases of the Face, Mouth, and Jaws," and forward their views at the earliest possible moment to the Secretary, in order that they may be incorporated in the printed transactions.

A committee, consisting of Drs. M. W. Foster, William Crenshaw, and L. G. Noel, reported appreciative resolutions on the death of Drs. Frank Abbott and Francis Peabody, late members, who have died since the last meeting was held. The resolutions were adopted.

The following lie over for final action till next year:

Offered by Dr. H. W. Morgan, seconded by Dr. H. B. Tileston:

Resolved, That on and after the session of 1899-1900, the regular sessions of each college belonging to this association shall be extended to four years.

Dr. J. Taft moved to amend the constitution to require applications for membership to be sent to the Secretary of the Executive Committee instead of to the Secretary of the association.

Offered by Dr. T. Fillebrown:

Resolved, That no college connected with this association shall confer any degree as honorary which is usually granted in due course of study and examination. All former rules on the subject are hereby repealed.

Offered by Dr. Barrett:

Resolved, That after the regular session in 1898-99 the annual college term for the members of the association shall be seven full months.

Dr. Crenshaw moved to strike out Rule 3 and adopt the following instead:

Resolved, That the time in which students can enter schools of this association shall be the first ten days of the session of the school, dating from the time announced in its catalogue.

The following were elected officers for the ensuing year: T. W. Brophy, Chicago, President; D. J. McMillen, Kansas City, Mo., Vice-President; J. H. Kennerly, St. Louis, Mo., Secretary; H. W. Morgan, Nashville, Tenn., Treasurer. J. Taft, Cincinnati; Thomas Fillebrown, Boston, Mass.; B. Holly Smith, Baltimore, Md., Executive Committee. James Truman, Philadelphia; F. J. S. Gorgas, Baltimore; J. Hall Lewis, Washington, D. C., Ad Interim Committee.

The newly elected President, on being installed, announced the following appointments: J. A. Follett, Boston, Mass.; H. A. Smith, Cincinnati, Ohio; L. L. Dunbar, San Francisco, Cal.; J. D. Patter-

son, Kansas City, Mo.; W. T. McLean, Cincinnati, Ohio, Committee on Schools. S. H. Guilford, Philadelphia, Pa.; William Crenshaw, Atlanta, Ga.; W. C. Barrett, Buffalo, N. Y.; W. P. Dickinson, Minneapolis, Minn.; Faneuil D. Weisse, New York City, Committee on Text-Books. J. Taft, Cincinnati, Ohio; Edward C. Kirk, Philadelphia, Pa.; A. H. Fuller, St. Louis, Mo., committee to select subjects and essayists for next meeting.

Adjourned to meet at the call of the Executive Committee.

SYNOPSIS OF THE PROCEEDINGS OF THE THIRTIETH ANNUAL MEETING OF THE TENNESSEE DENTAL ASSOCIATION.

THE meeting was called to order Tuesday, July 6, 1897, at 10 A.M., President U. D. Billmeyer in the chair. Dr. H. E. Beach opened the session with prayer, and was followed by Dr. R. R. Freeman, who gave the address of welcome, in place of Dr. Stubblefield, who could not be present. Dr. Freeman's address was given in his usual happy way, and was ably responded to on behalf of the association by Dr. A. R. Melenda, of Knoxville.

Dr. N. C. Leonard, of McMinnville, First Vice-President, was called to the chair, and President Billmeyer gave his address, touching on the history of the association, the good it had done, and the possibilities before it, particularly as a factor in the higher education of the profession at large in the state.

After appointment of Auditing Committee and Committee on Membership the Association adjourned until 2 P.M.

The meeting was called to order at 2 P.M. by the President, and papers were read by Dr. B. D. Brabson, on "Individual Effort;" Dr. N. C. Leonard, "A Clinical Report on Extraction of Live Pulps and Immediate Root-Filling;" Dr. H. E. Beach, "Physical Diagnosis;" Dr. J. T. Crews, "Cystic Tumors of the Alveolar Process."

Discussion of the above papers was freely indulged in by the members, and after accepting an invitation from Morrison Brothers to visit the Centennial on Wednesday afternoon, the meeting adjourned.

SECOND DAY, JULY 7, 1897.

The morning was devoted to clinics in the operating-room of Vanderbilt College of Dentistry by Dr. Gordon White, "Treatment of Pyorrhea;" Dr. R. N. Kesterson, "Gold-Filling Automatic

Plugger;" Dr. L. G. Noel, "Treatment and Filling of Root-Canales;" Dr. Henry W. Morgan, "Obtunding Sensitive Dentine by Cataphoric Medication."

Filling root-canals of teeth embedded in plaster and exposing same, in charge of Dr. Charles H. Smith.

Much interest was shown in the clinics, and each operator was surrounded by a crowd of men eager to catch any new points that might be brought out. Clinics closed at 12:30.

AFTERNOON SESSION.

The meeting was called to order by Dr. N. C. Leonard, First Vice-President, as President Billmeyer had been called home on account of the sickness of his son.

Committee on President's Address reported, which report was received, discussed, and adopted. The meeting adjourned at 4 p.m. to visit the Centennial, and all had an enjoyable time viewing the grand achievements of our state and nation.

THIRD DAY, JULY 8, 1897.

The meeting was called to order by Vice-President N. C. Leonard. Dr. Henry W. Morgan read a paper, written and sent to the Association by Dr. L. B. Bethel, of Kent, O., entitled "Root Treatment by Means of the Silver Salts and Cataphoresis." This was a paper of a high order, and was listened to with marked attention by the members, and brought out many ideas, both new and old, in the discussion which followed.

At this point a telegram was received from Dr. Billmeyer announcing the death, on the previous evening, of his little son. Dr. J. Y. Crawford was requested to send Dr. Billmeyer and wife a telegram of sympathy and condolence in their bereavement, and resolutions to this effect were passed by a rising vote.

AFTERNOON SESSION.

The meeting was called to order at 2 p.m., Dr. A. R. Melenda, Second Vice-President, in the chair.

The following papers were read:

Dr. R. D. Crutcher, "Gold Fillings Lined with Soft and Finished with Cohesive Gold Foil."

Dr. Gordon White, "Dentistry as a Liberal Science."

Dr. J. L. Mewburn, "The Construction of an Artificial Denture from Start to Finish."

Dr. J. Y. Crawford gave a new theory of his own as to the cause of dental caries.

Dr. A. R. Melenda explained the use of bridges in correcting irregularities of the teeth.

Dr. S. B. Cook showed and explained the utility of a diamond disk, which was an improvement of his own.

On motion, the Secretary was authorized to employ a stenographer for the next meeting of this association.

Dr. Fowler's paper was read by title.

The following officers were elected for the ensuing year: President, Dr. R. D. Crutcher, Lewisburg; First Vice-President, Dr. J. T. Crews, Humboldt; Second Vice-President, Dr. J. M. Graham, Tullahoma; Secretary, Dr. Charles H. Smith, Chattanooga; Treasurer, Dr. H. E. Beach, Clarksville; Corresponding Secretary, Dr. U. D. Billmeyer, Chattanooga.

President Crutcher appointed the following Executive Committee: Dr. S. B. Cook, Chattanooga; Dr. N. C. Leonard, McMinnville; Dr. H. W. Morgan, Nashville.

The association adjourned to meet on Lookout Mountain the first Tuesday in July, 1898. CHARLES H. SMITH, *Secretary.*

NORTHERN ILLINOIS DENTAL SOCIETY.

THE tenth annual meeting of the Northern Illinois Dental Society will be held at Rockford October 20-21, 1897. A good program is in course of preparation, and the profession generally is invited to attend.

LOUIS OTTOFY, *Chairman Ex. Com.;*
J. W. CORMANY, *Secretary.*

TEXAS DENTAL ASSOCIATION.

THE Texas Dental Association convened in regular session at Waco, Tex., May 18 last, and elected the following officers: Dr. J. L. Buchanan, President; Dr. M. S. Merchant, First Vice-President; Dr. J. W. David, Second Vice-President; Dr. J. G. Fife, Secretary and Treasurer. The meeting was of unusual interest, and the report of the Secretary showed the association to be in a healthy, growing condition.

J. G. FIFE, *Secretary.*

Dallas, Tex.



ARTIFICIAL TEETH.

To those dentists who have for many years used and approved the teeth bearing the stamp of H. D. Justi, it might seem unnecessary to further advertise them; but for the information of the great number of young men who are annually entering the ranks of the dental profession, we wish to call attention to a few points in which we claim a superiority for these teeth over all others.

In Form these will excel both in variety and in close imitation of nature, not only in her ordinary average styles, but also in what might be called her eccentricities of the form and arrangement.

In Color we have succeeded in most nearly securing that bony texture which is so distinct from the porcelain glitter we see in so many artificial teeth, and in the delicate blending of the shade they are eminently satisfactory.

In Strength they have the highest degree possible consistent with maintaining the other qualities required. It would be quite possible to make teeth much stronger by disregarding beauty of form, and making a coarse, thick block; but this ought to be, and doubtless would be, at once rejected by both dentist and patient.

In Adaptation to the alveolar ridge, great care has been taken to meet every requirement, and finally we ask for the product of our factory only a careful criticism and fair trial to convince the profession that we are fully justified in the superiority we claim for it.

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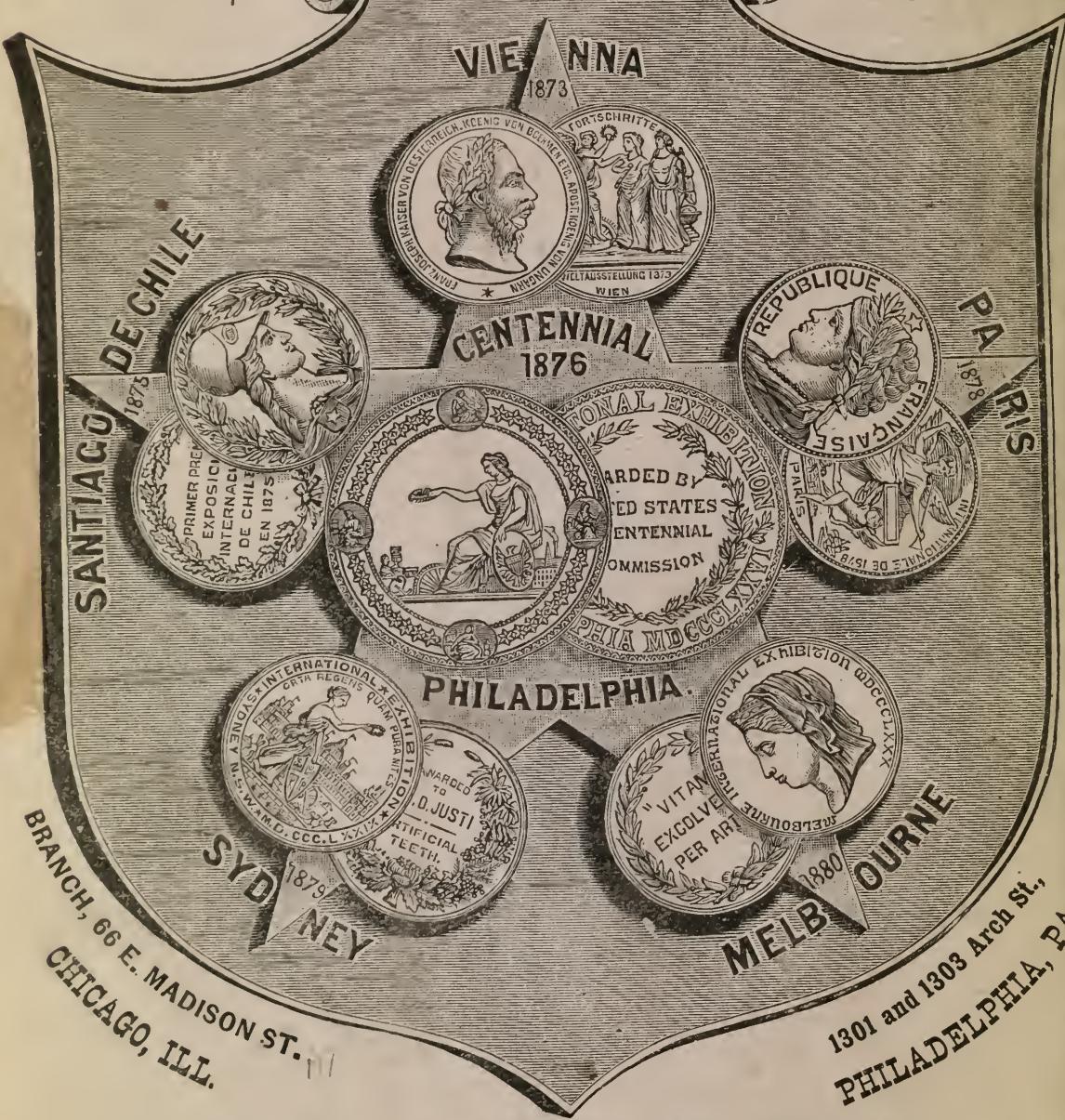
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